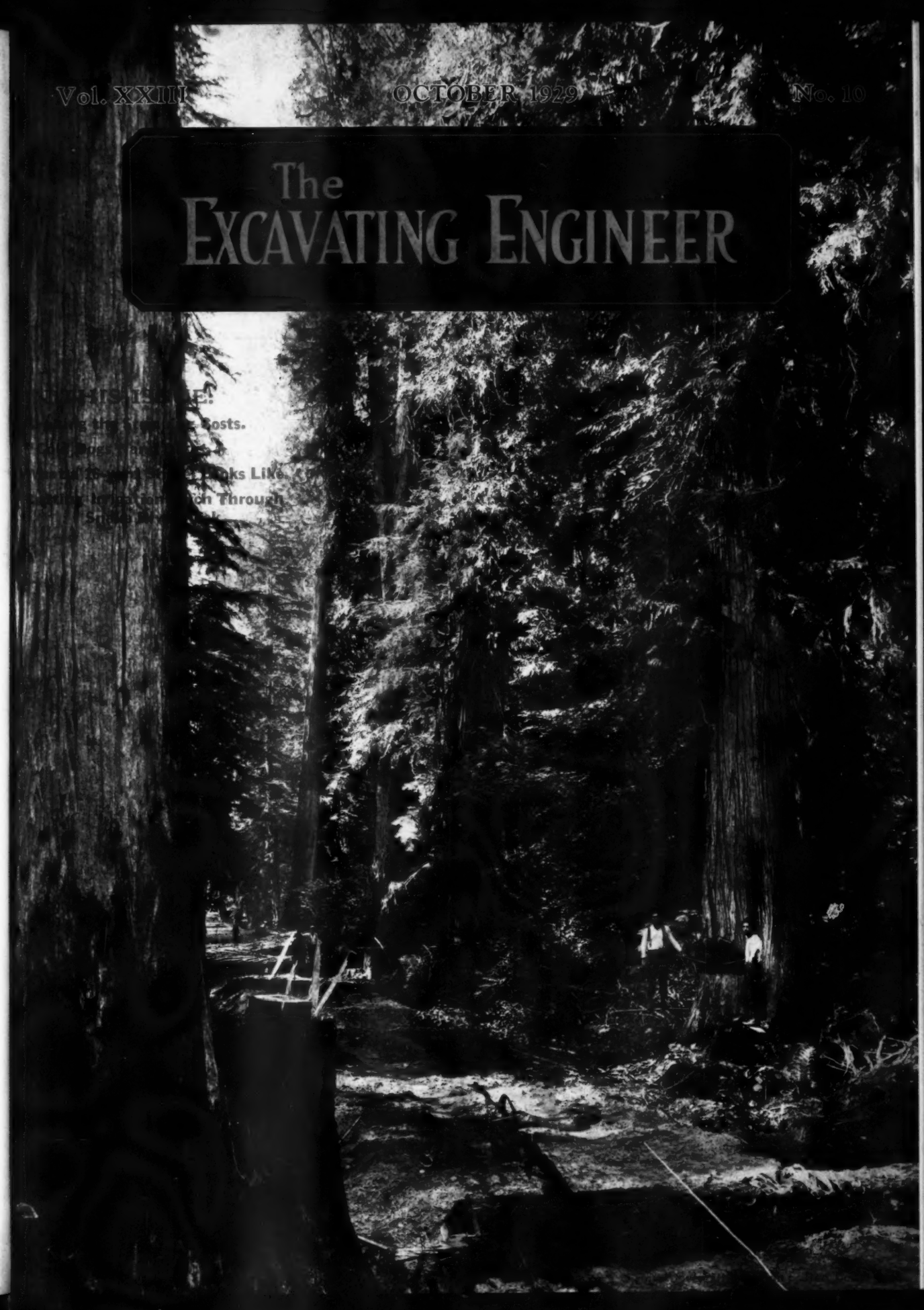
Vol. XXIII OCTOBER 1929 No. 10

The EXCAVATING ENGINEER



5 minutes with a Gas+Air user—

Dragline, Clamshell and Drag Shovel, as well as Shovel

Every Gas + Air Shovel is quickly convertible for other kinds of work — with the same advantages of greater Speed and Power.

may mean *years* of better business— *thousands of dollars* extra profit for you

Ask some of the users of Gas + Air BUCYRUS-ERIES about the Bigger Production they are getting. You'll hear reports like these:

"The Gas + Air will out-speed, out-dig, out-travel and out-last any of them." — *Brown Constr. Co., Inc., Sacramento, Calif.* "Gas + Air BUCYRUS-ERIE'S output is far superior." — *Ocala Lime Rock Co., Ocala, Fla.* "Our Gas + Air BUCYRUS-ERIES dig rings around our large shovels every day." — *Morrison-Knudsen Co., Boise, Idaho.* "Moved more material than our two 1¼-yard shovels." — *Lewis Constr. Co., Los Angeles, Calif.*

Why the Gas + Air is faster:

It has direct-connected engines, air-operated, for crowding and swinging. These engines respond instantly to the touch of throttle levers.

No clutch to set for swinging — starts instantly, swings faster and smoother, stops without a jar. *No clutch to set for crowding* — instant response, and perfect control for accurate cutting.

Unequalled digging power

In hard digging the operator can hoist with the *full power* from the gasoline motor. The independent air-operated crowding engine does not reduce the power available for hoisting.

Built with extra strength, to back up its greater speed and power.

Read some of the reports from owners, in the 64-page book: "Making More Money with the Gas+Air." Sent free — write us for it.

BUCYRUS-ERIE COMPANY
General Offices: South Milwaukee, Wis.
Plants: South Milwaukee, Wis.—Erie, Pa.—Evansville, Ind

Representatives throughout the U. S. A. Offices and distributors in all principal countries of the world.

BUCYRUS ERIE

BRANCH OFFICES:

Boston	Birmingham	Chicago
New York	Pittsburgh	St. Louis
Philadelphia	Buffalo	Dallas
Atlanta	Detroit	San Francisco

Adv. 792

Besides the Famous

TAYLOR MESABA

STEAM SHOVEL CHAIN

Taylor-Made Products Include

Electric Weld—Fire Weld—Hand Weld

Proof Coil Chain
B. B. Coil Chain
B. B. B. Coil Chain
Twist Link Coil Chain
Steel Loading Chain
Stud Link Anchor Chain
Close Link Anchor Chain
Conveyor Chain
Grab-Slip Hooks
Cold Shuts
Missing Links
Anti-Skid Chain for Trucks
Bright Machine Chain
Tow Chain
Pocket Wheel Chain
Sheave Chain
Sling and Crane Chain
Log or Binding Chain
Derrick Chain
Railroad Switch Chain
Railroad Brake Chain
Log Haul-Up Chain
Wagon and Stay Chain
Dredge Chain
Chain and Ring Dogs
Open Links
Special Hooks
Shackles or Clevises
Bright Liberty Coil Chain
Mine Car Hitchings or Couplings
Boom and Rafting Chain
Special Chains to Blue Print

SAVE MONEY BY USING TAYLOR CHAIN
"BEST BY TEST"

Service in Taylor chain is assured by the higher quality of the product, which gives you longer, surer service in the field. Since 1873 Taylor has been manufacturing the finest quality of chain that science can build or money can buy. Every link is proof tested and branded for your protection. At the factory large stocks of raw material and the finished material are carried for instant filling of your orders.

"Taylor Made" chain and fittings can be obtained from your local mill supply house or local mill supply jobber.

CHAIN THE STRONG LINK OF INDUSTRY THE CHAIN INSTITUTE

S. G. TAYLOR CHAIN CO.

Established 1873 **P. O. Box 117-B. Hammond, Indiana**

The Excavating Engineer

About Excavating Projects—By Excavating Men—For Excavating Men—The World Over

25 Cents Per Copy **One Dollar Per Year**

Vol. 23 OCTOBER 1929 No. 10

CONTENTS

Articles

Banking the Stripping Costs 429
"Cold Dogs" and Dikes 433
What a 16-yard Shovel Looks Like 436
Cutting Irrigation Ditch Through Snake River Rock 437
Dam Building in Algeria 439
Our Front Cover 441
Improving French Harbor on Mediterranean 442
New Zealand Public Works Digs a Diversion Mile Channel Through Solid Rock 443

Field Notes

Laying Up Machines for Winter 439

Editorials

The Business Situation 440
Good Roads Increase Popularity of Automobile 441
42 States Building 21,664 Miles of Roads 442

Equipment You Ought to Know About

"Double Automatic" Mine Car 444
New Portable Bench Grinder 444
New Blast Hole Drill 444

Shots from the Firing Line

National Paving Brick Manufacturers Association Meet at Chicago, December 4th, 5th and 6th 445
Annual Asphalt Paving Conference to Be Held October 28th to November 1st at West Baden Springs, Indiana 445
Canada 445
Eastern Notes 446
New York State Notes 450
Pennsylvania Notes 452
Kentucky Notes 455
Ohio Notes 456
Detroit and Vicinity 456
Central States Notes 458
Southern Notes 460
St. Louis Notes 460
Kansas City Notes 462
Washington Notes 463
Oregon Notes 464
California Notes 465

Book Reviews 466

PUBLISHED MONTHLY BY

The Excavating Engineer Publishing Co.

F. O. Wyse, Manager-Editor Arnold Andrews, Associate Editor

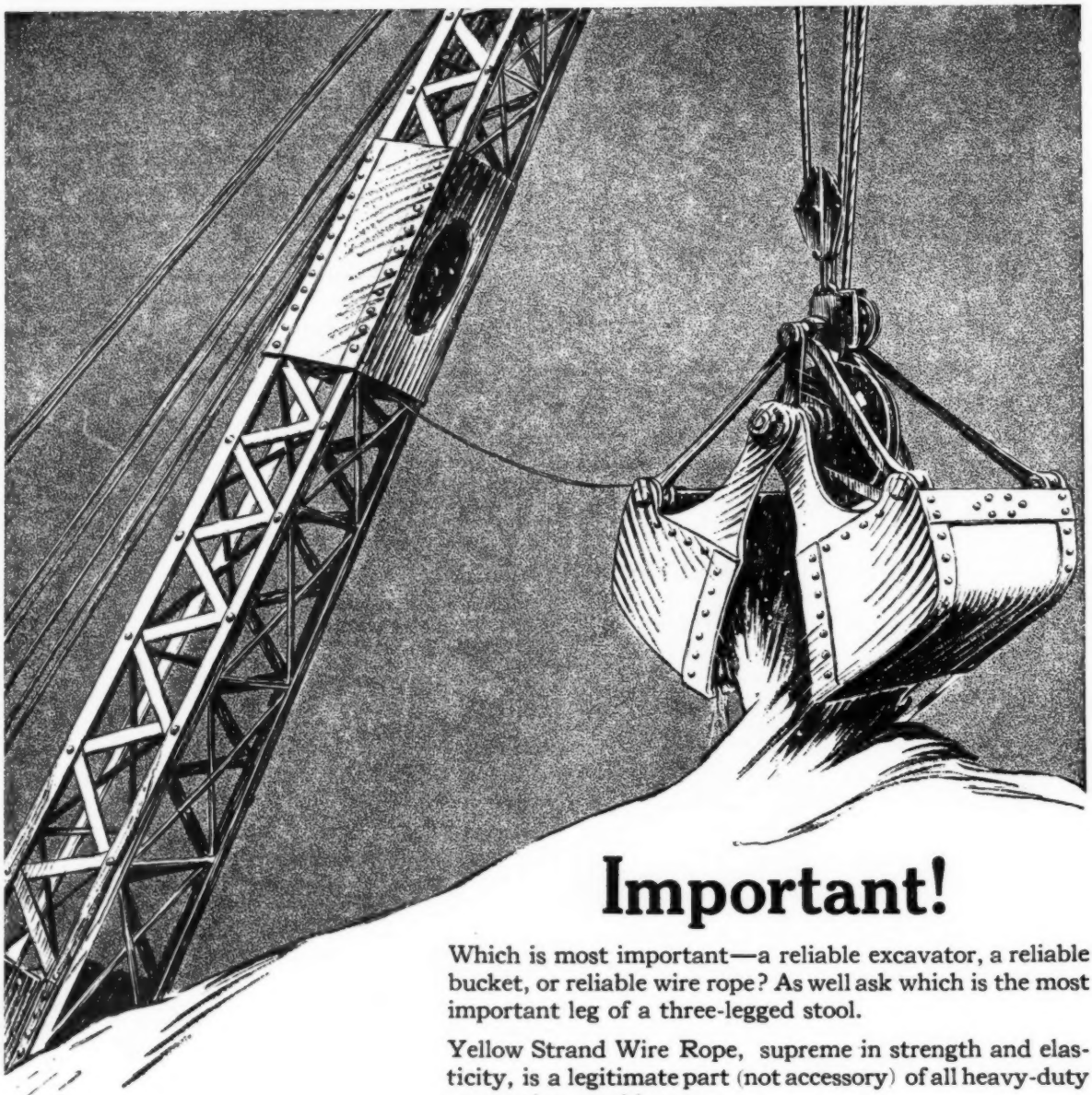
South Milwaukee, Wisconsin, U. S. A.

ADVERTISING REPRESENTATIVES

H. B. KNOX, Jr.,
101 Park Ave., Room 1126
New York, N. Y.

V. G. CLYDE.
7013 Ridge Ave.,
Chicago, Ill.

Copyright 1929 by The Excavating Engineer Publishing Co.



Builders of the famous B. & B. Aerial Tramways for industrial haulage.

Important!

Which is most important—a reliable excavator, a reliable bucket, or reliable wire rope? As well ask which is the most important leg of a three-legged stool.

Yellow Strand Wire Rope, supreme in strength and elasticity, is a legitimate part (not accessory) of all heavy-duty excavating machinery.

Write for Catalog 51 and name of nearest distributor of B. & B. Ropes.

BRODERICK & BASCOM ROPE CO., St. Louis, Mo.

Eastern Office and Warehouse: 68-70-72 Washington St., New York City
Western Office: Seattle—Factories: St. Louis and Seattle

YELLOW STRAND WIRE ROPE

THE RIGHT WAY TO STORE EXPLOSIVES

ONE of the frequent causes of misfires, partial detonation, and failure to secure full energy from explosives, is improper storage.

Explosives and detonators tend to deteriorate if kept too long. Rules should be established, and strictly enforced, requiring that the older stock must be used first. If new stock is piled in front of it and drawn on first, explosives that are too old for satisfactory service may reach the working place.

Magazines should be dry, well ventilated, clean and cool—not subject to extremes of heat and cold. Cases should be placed so that cartridges are lying on their sides—not standing on end.

Detonators should not be stored in the same magazine with black powder or dynamite.

There are other important rules to be observed in storage which we shall gladly supply on request, together with plans and specifications for standard storage magazines.

COSTS CAN BE REDUCED BY BETTER STORING, HANDLING AND USE OF EXPLOSIVES

HERCULES POWDER COMPANY (INCORPORATED), 949 King Street, Wilmington, Delaware

Gentlemen: Please send me the following:

- ☐ Other advertisements of this series which are suitable for bulletin board posting.
- ☐ Large linen poster of explosives handling and use rules.
- ☐ Best Practises Handbook
- ☐ 1928 *Explosives Engineer* index of drilling and blasting articles.

Name..... **Address**.....

2657-2611

In writing to Hercules Powder Co., Inc., please use coupon or post card bound in the center of this number.

Floodlights on the Bucyrus-Erie give ample light for digging. The 1½-yard dipper is carried by 10-foot sticks and a 14-foot boom. Outside handles force the dipper through the rock without wobbling.

The EXCAVATING ENGINEER

Vol. XXIII OCTOBER 1929 No. 10

Plymouth picking up a two-car train. Dynamite is stored in the column marked by wiring.

Banking the Stripping Costs

Valmeyer operations of Columbia Quarry Company go underground to avoid high stripping cost of moving heavy overburden.

ABOUT 17 miles south of the old-New-England-landish town of Columbia, Illinois, is the village of Valmeyer and the interesting Valmeyer Quarry of the Columbia Quarry Company. Here is produced by underground mining methods 300,000 tons of crushed limestone annually. Most of the stone goes over the Missouri Pacific to East St. Louis and Granite City for use in the blast furnaces, aluminum concentration and open-hearth steel mills. Agstone by-product for agricultural use is being marketed locally.

Previous workings were in two open quarries originally opened by the railroad company. When these commenced to work into heavy overburden, operations were changed to underground to save stripping costs.

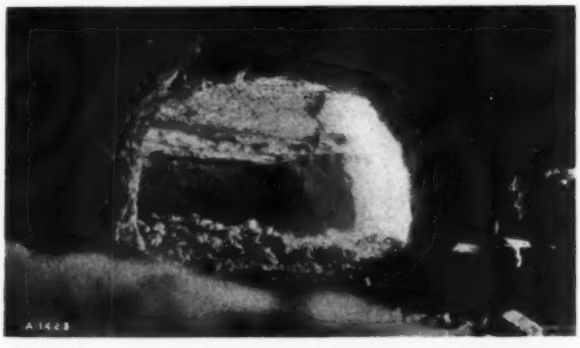
About 600 acres of high calcium limestone are available in present holdings, the present workings being in a ridge carrying 20 to 50 feet of loose earth overburden and 50 to 55 feet of limestone lying on a 10-foot ledge of flinty limestone. The mining level follows about a foot above this flint strata.

The "room and pillar" system is used, chambers 42 feet wide and 28 feet high being opened between columns 25 feet square. About 20 feet of the 30 feet of stone left in the roof above will eventually be worked out in the retreat to the

starting point after the workings have been extended to the farthest limits.

2750 Pounds Rock Obtained Per Pound of Dynamite

The stone drills very easily, the principal difficulty in drilling operations being due to vertical fissures which trap the drills. Three Gardner-Denver No. 7 drifters are used with 1¼-inch hollow bits. The drills are mounted on 18-foot columns with 3-foot arms. Holes average about 80 to a room and are 15 feet deep, four to a line. They are loaded with 35% du Pont special gelatin, which gives practically no fumes. No. 6 electric exploders and No. 6 igniters delay exploders are used, with three and four sets of igniters used in group loadings.



Sunlight and fresh air are admitted through openings cut through the walls of some of the outside chambers. This is an exceptionally clear illustration, made from a snapshot taken with a small camera, 1/25 second.

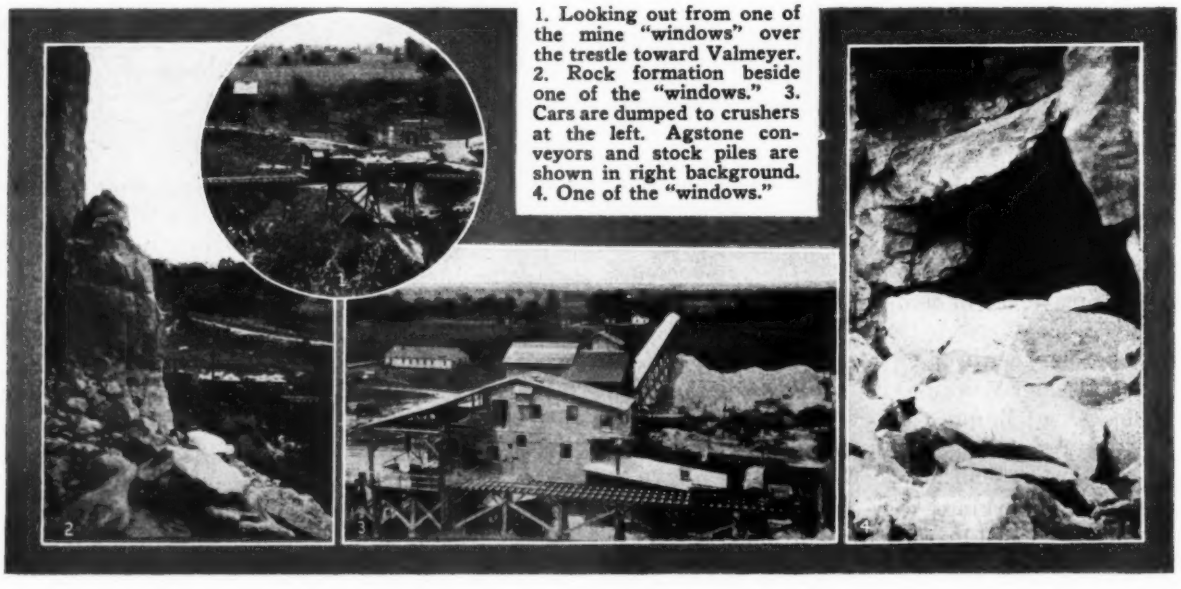
After the heading shot the roof is drilled, with 18-foot holes and dropped on the headings. While no oversize is found in heading shots, the roof shots come down about half oversize, but the method of shooting leaves this on top where most of it can be easily reached with the Gardner-Denver jackhammers for drilling and secondary blasting.

Near the entrance one of the pillars has been hollowed out, making a ten by ten-foot chamber where the dynamite for immediate requirements is stored.

Air is supplied by a Sullivan W. N. 31 compressor delivering 875 cubic feet per minute. It is driven by a direct connected General Electric motor and two-inch feeder lines supply the mine. An Ingersoll-Rand No. 10 of 450 cubic feet per minute capacity serves as an auxiliary compressor as needed. This is driven by an Allis-Chalmers 100 h.p. motor. Compressors are located outside in a corrugated iron building near the screening plant. About 1½ tons of rock is obtained per foot of drill hole and 1⅜ tons of rock per pound of explosive.

Bucyrus-Erie Electric Loads Stone Underground

1½-yard Special Bucyrus-Erie electric shovel on caterpillar-type mounting with 14-foot boom and 10-foot sticks loads the stone into narrow gauge cars. These are especially built Columbia Quarry Company side dump bodies on 6½-ton Koppel trucks. Eight of these are in service, being hauled from the shovel, one car at a time, by 8-ton Plymouth gasoline locomotives, two of which are in use for spotting, to sidings in the main tunnel. Here the loads are picked up in 2-car trains by an 18-ton Plymouth for hauling to the plant. Track is 36-inch gauge with 56-pound rails and is fairly level inside. There is a 35-foot drop from mine



1. Looking out from one of the mine "windows" over the trestle toward Valmeyer. 2. Rock formation beside one of the "windows." 3. Cars are dumped to crushers at the left. Agstone conveyors and stock piles are shown in right background. 4. One of the "windows."

Notice the two-track spot used behind this Bucyrus-Erie 1¼-yard electric. Though working in a dead-end cut at all times, this arrangement permits the shovel to load with very little delay.

floor to plant dump trestle, which is taken care of by an 8 per cent grade in approach to the mine entrance. The shovel is worked up the center of the cut and a track is laid on each side, so that loading can be handled continuously by spotting the two trains on separate tracks.

Production at the time of our visit was averaging 850 tons per day, operating on a 12-hour shift. Two operators, Henry Meinan and Joseph Allgire work 7 hours each, one starting an hour before shift and the other staying one hour after shift, thus doing all oiling, greasing and repairing without delaying the loading.

Fresh Air Naturally Supplied Through Tunnel Openings

Plentiful ventilation is provided by opening a number of chambers out through either side of the ridge, and a certain amount of daylight comes in from the same source. Lights are necessary for working, however, and two floodlights on the shovel and two 100-watt electric lamps illuminate the loading operations. Acetylene miners' lamps are used by the drillers and laborers. Natural moisture in the rock prevents dust.

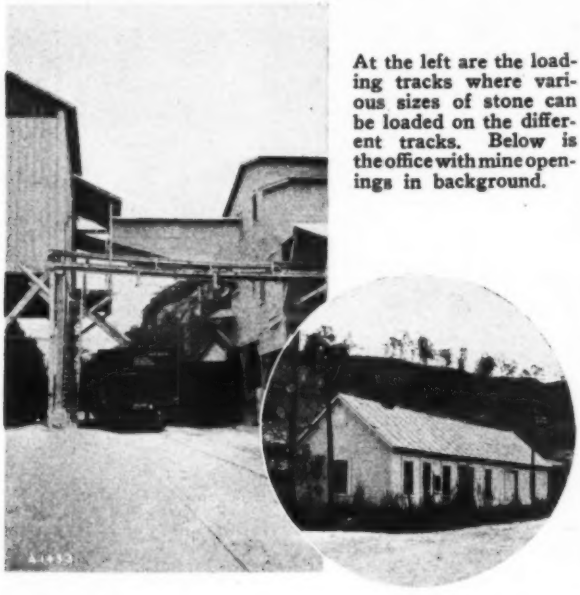
Several men are kept busy taking care of the roof, baring down or shooting down loose stone, and carefully inspecting all ceilings before men are permitted to work underneath mount.

The mine is a most comfortable place to work summer or winter. Even on the sweltering July day of our visit the interior was cooly comfortable. Another advantage of the underground mining is that the limestone comes out perfectly clean, and washing, which was necessary while open quarrying was used, is no longer needed.

Plant Operations Provide Direct Loading to Cars

At the plant the cars are dumped by air hoist, the rock passing into a No. 18 Allis-Chalmers crusher. From this the stone is carried by a 36-inch conveyor to an elevator which dumps into a Grundler 24 feet by 72-inch screen. The oversize 1½-inch to 5-inch goes through to the cars from this screen, while the 5 to 7-inch also goes into cars for another customer. At will this oversize can be handled on an 18-inch conveyor to a No. 4 Symons Cone, where it is crushed and returned to the main stone elevator. From the revolving screen the 2-inch and down is carried over a 24-

inch conveyor to a hexagon screen where the 2-inch to 7/8-inch is spotted directly to cars. The 7/8-inch minus is taken over Traylor vibrators where the 7/8-inch to 1/4-inch is separated and sent to the loading chutes or mixed with the 2-inch to 7/8-inch as may be desired. The 1/4-inch and less from the Traylor vibrators is used for agricultural lime dust, and goes directly to cars for loading or to storage pile over a 14-inch conveyor running on 200-foot centers. A wagon loading bin is under erection for handling stone from this stock pile and delivering to farmers in the vicinity. Loading is direct to cars in all cases, except for the above-mentioned Agstone stock piles no bins being required.



At the left are the loading tracks where various sizes of stone can be loaded on the different tracks. Below is the office with mine openings in background.

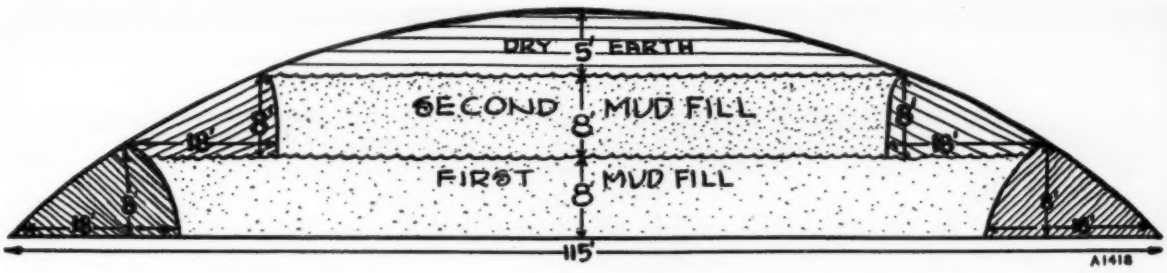
A Mundy 2-drum hoisting engine is used for a car puller under the loading chutes. Most of the machinery in the plant is driven from a line shaft which is connected to a 150 h.p. Allis-Chalmers motor.

P. G. Forman is superintendent of the operations at Valmeyer, Chas. Asselmeier is general foreman, Chas. Loewe, foreman, and Thos. S. Cheney has charge of the plant office.

The Columbia Quarry Company also own and operate a large quarry and plant at Krause, Illinois, about two miles north of Columbia, where production is 600,000 tons per year. Stone is loaded in this quarry with one Bucyrus-Erie 50-B electric, one 73 Osgood railroad steam shovel, one 95-C Bucyrus-Erie railroad shovel, one Marion 37 steam shovel, and one Bucyrus-Erie 70-C railroad shovel, while hauling is in 6-ton side dump cars. C. E. Klaus is superintendent at the Krause Quarry, and C. E. Glassen, master mechanic of all operations, also makes his headquarters there.

Office of the Columbia Quarry Company is at 1612 Syndicate Trust Building, St. Louis, Missouri. E. J. Krause is president (also president of the Zenith Limestone Company operating a quarry at Tulsa, Oklahoma), C. H. Krause, vice-president, and H. F. Schmitt is secretary and treasurer.

18-ton Plymouth dropping the Koppel cars down the eight per cent trestle grade to the plant. Mine entrance, with an excellent view of the rock strata and lay of overburden, can be seen in the background.



"Cold Dogs" and Dikes

East Peoria job of McWilliams Dredging Company shows interesting levee building method.

By A. K. BRILL

ABOUT three years ago an ingenious confectioner contrived a method of serving ice cream, chocolate and cake at one time by making a tube of chocolate-covered cake and inserting the ice cream by means of a "gun." These were marketed to the hungry public under the trade name of "Cold Dogs."

It may be that "Cold Dogs" gave the McWilliams Dredging Company of Chicago the idea for the construction of their "slop" dikes or levees, the "chocolate-covered cake" being supplanted by dry earth and the "ice cream" used being nothing but good, unadulterated mud. The "slop" levees are as permanent as earth levees can be made and the method of construction is a unique one. Only a small fraction of the dirt is handled twice, while by usual methods in large levees it is customary to handle the largest portion of the yardage three times.

In East Peoria, Illinois, the Caterpillar Tractor Company has been carrying out a large expansion program. A grader plant and a harvester factory are being constructed on what was once overflow lands of the Illinois River. When this navigable stream is at its highest stages, this land was some ten or twelve feet below water level.

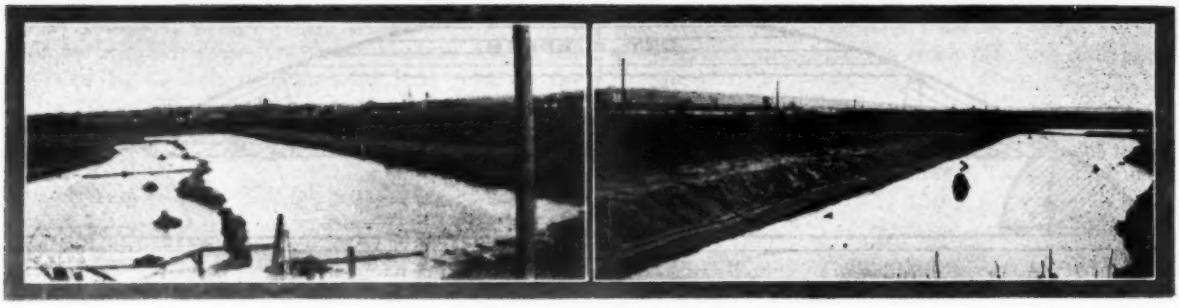
Seventy-Seven Acres to Be Filled, Surrounded by Shell Dike

There were seventy-seven acres to be filled to high water level, and the hydraulic dredge Vulcan owned by Woods Brothers Construction Company of Lincoln, Nebraska, carried in a mixture of sand, mud and water pumped from the bottom of the Illinois River. 725,000 cubic yards was required in all, and half of this came from the river bottom in seven months' work. The other half came from thirty-three acres of river land at the east end bordering on Farm Creek and was pumped in three months. This smaller tract was acquired and excavated to a depth of thirty feet to furnish the dirt necessary for the filling of seventy-seven acres, in addition creating a splendid harbor that will be worth many times its cost when the Illinois River becomes a part of the Great Lakes-to-Gulf Deep Waterway that is now under construction at points further north on the Illinois River. One twelve and one eight-inch pump carried the surplus water back into the river after the sand had settled.

But first two sets of dikes were constructed by two Bucyrus-Erie 50-B dragline outfits, one owned by the McWilliams Company and the other by the Doyle Dredging Company of Peoria.

Old levees built in 1908 by the East Peoria Drainage Commissioners lay along the west and east sides of the property, keeping out the high waters of the Illinois and of Farm Creek. The 33-acre borrow pit and harbor tract lay just in the corner of the intersection between these two streams behind the old levees. As the portion of

Bucyrus-Erie 50-B Diesel working on creek project at East Peoria.



East and North levees and borrow pits.

The 50-B dragline worked along the bench, taking the dry earth first for the levee shell and later pulling the "slop" to fill the core of the levee. The borrow pits, (under water) are about one hundred and fifty feet wide and thirty feet deep. The levees behind the bench are about 1000 feet long.

the old levees were to be removed in excavating the 33-acre borrow, new connecting levees had to be built at the north and east of this tract to restrain the river waters. These levees, one on the north 1000 feet long and one on the east 900 feet long, were built by the McWilliams Dredging Company.

Inside these levees the Doyle Dredging Company built temporary dikes to hold the hydraulic fill. These dikes were about one hundred and fifty to two hundred feet from the new levees. Due to a drainage ditch, power company's right-of-way and a 40-foot road it was impossible to fill up to the new levees built by the McWilliams Company, hence this parallel dyke or retaining wall for the hydraulic fill.

It was in the construction of the new levees built by McWilliams that the "slop" levee construction methods was used. The specifications called for a dike with a base width of one hundred and fifteen feet and a height of 15 to 21 feet. About 58,000 cubic yards of dirt were required for the levee and excavation of several thousand yards in the muck ditch.

The McWilliams Dredging Company had a Bucyrus-Erie in East Peoria on a diversion channel for the East Peoria Sanitary District when the Caterpillar Company job turned up. If it were possible to build these levees with the creek job outfit — a 50-B dragline with sixty-foot boom and one and one-half-yard bucket — there would be a considerable saving of moving expense.

Using a cable line and scraper cleaning up the spill.

Wet Filler Used to Save Rehandling with 50-B Dragline

A sixty-foot-boom machine is not usually considered large enough to build a one hundred and

Thirty-three acres of this black corn land becomes a harbor thirty feet deep at the junction of Farm Creek and the Illinois River.

fifteen-foot levee, especially when the work has to be done with the machine at one side. With such equipment it is usually necessary to handle most of the dirt at least three times, but the system of using a "wet filler" made the construction of the levee (averaging five thousand yards to the station) possible with a sixty-foot boom with but very little rehandling.

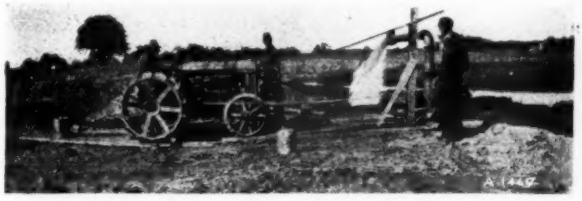
In building the east levee the "muck ditch" supplied enough dry earth to build a dike eight feet high with an eighteen-foot base.

When the first side of the "chocolate-covered cake shell" was completed, the Bucyrus-Erie crawled over some ninety plus feet and started on the "borrow pit" just outside the new land area. From this excavation another dike eighteen feet wide and eight feet high was built to form the inside wall of the levee. This left a space between two dikes to be filled with wet mud or "slop" as the boys around the machine term it.

Due to the close proximity of the river some seepage was encountered under the old levees. A six-inch centrifugal force pump powered by a Fordson tractor was used to lower the water level of the "borrow pit" when dry earth was desired. When the mud filler was wanted the pump was shut off.

Special Bucket Built for Handling "Slop"

The regulation dragline bucket was not suited for handling the "slop," so a special one and one-half-yard bucket was designed by R. Woest, superintendent of the job, to handle this oozy material. A lid was fastened to the top of the bucket and



Tractor and pump used to lower water level in borrows when dry dirt was needed.

only one end was left open. When digging wet mud, the bucket was filled and tilted in the air with no loss whatever and the wet mud handled as if it were water, and poured in its place between the two dikes.

The mud was "slopped" between the two dikes all along the entire length of the levee for a depth of about two and one-half feet. This was permitted to dry and harden and another layer of mud was added. Additional layers were poured until the eight-foot shell dikes were level across the top. The entire eight-foot layer was permitted to settle until the North levee was constructed to this same stage, giving the mud fill on the east levee an opportunity to dry out.

When the work was started a second time on the east levee, the water level of the "borrow pit" was lowered, and a large quantity of dry earth placed on top of the eight-foot layer. After this operation was complete, the outfit crawled to the east side of the levee and the dry dirt dragged over

Novo pump on the Beardstown project.

toward the machine, and another eight-foot dike formed on top of the one hundred and fifteen-foot base. This eight-foot dike was the only portion of the dirt in the whole levee that had to be handled more than once.

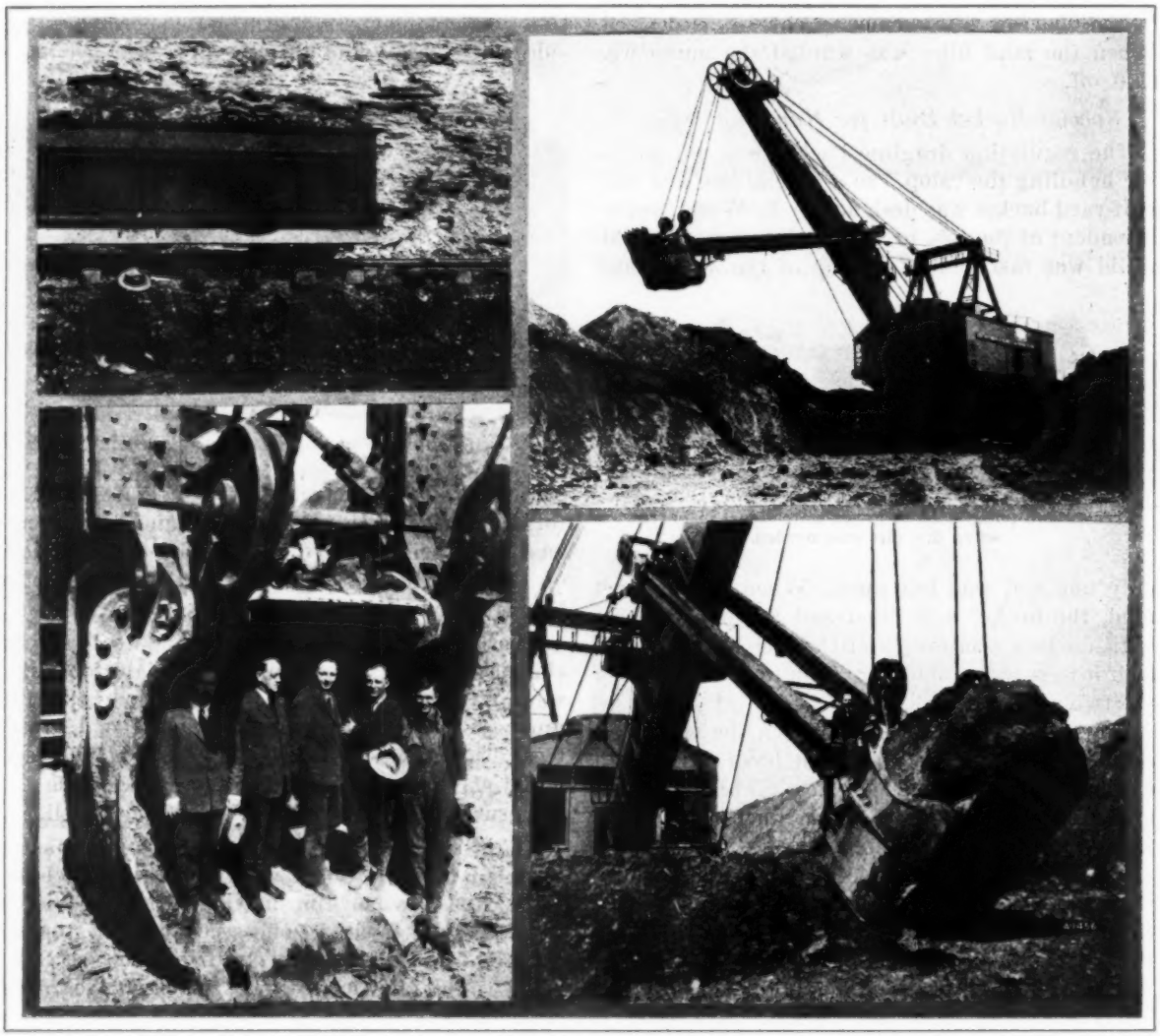
The machine then crawled around to the west side of the levee again and another eight-foot dike was built, and the "slopping" operation repeated until the levee had attained a height of sixteen feet. This was also permitted to dry, and five feet of dry earth was then piled on top, forming the upper crust of the "chocolate-covered-cake" shell.

The work does not move along as quickly as it takes to tell it. Construction might have been faster and the machine moving eliminated if it were possible to fill in one section to the top at one time and then walk on to another section. This would take months and probably years to

(Continued on Page 442.)

Shell levee at East Peoria in the first level stage of construction.

What a 16-yard shovel looks like

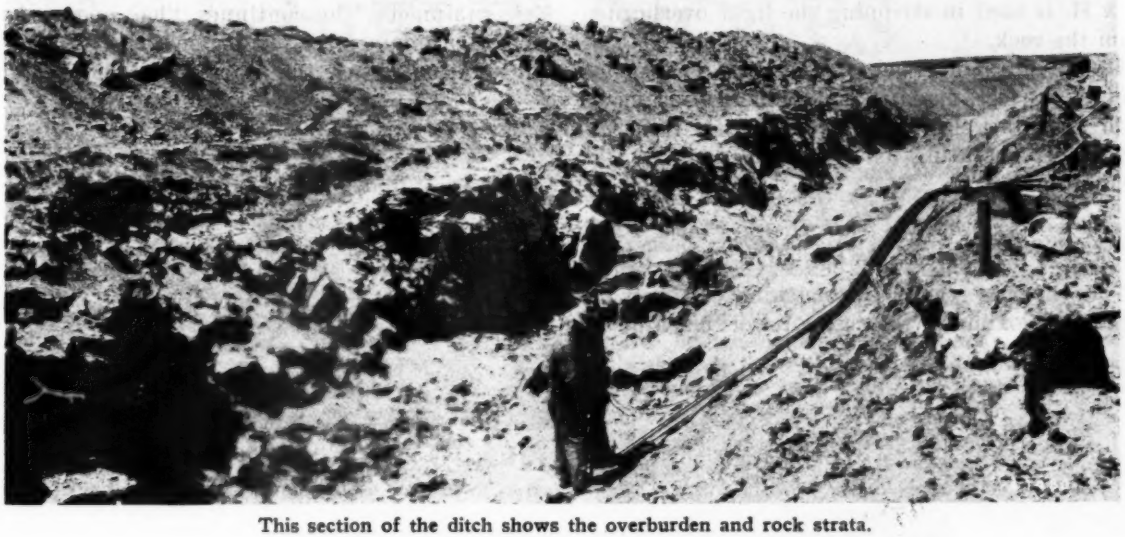


THESE illustrations show Pittsburg & Midway Coal Mining Company's Bucyrus-Erie 16-yard stripper operating at Pittsburg, Kansas. This giant shovel tears out 16 yards and more of overburden at a bite. Surveyor's measure showed a single heaping dipperful after dumping to contain 23 cubic yards. The machine is full revolving and mounted on caterpillars. The operating cycle is under 45 seconds, and the machine will average better than a bite a minute through a twenty-four-hour day of operation. Moving up takes less than a minute.

In the upper left is shown the depth of the coal seam uncovered. At the right the giant stripper is opening a box cut. In the lower left, standing in the 16-yard dipper are Harold Spencer, President of the Pioneer Coal Company, C. F. Spencer, President of the Pittsburg and Midway Coal Company, Kenneth Spencer, in charge of Engineering for the Pittsburg and Midway, H. C. Widmer, Assistant Engineer, and Charles Williams, operator. Kenneth Spencer helps us realize the capacity of the mammoth bucket at the lower right.

This machine has been stripping in rather hard overburden for the past three months, ranging in depth from 24 feet to 36 feet. A seam of hard blue slate lies directly over the coal, then drab shale, then 2 feet to 12 feet of hard dense sandstone. Production for monthly periods has averaged 800 yards and over per hour, some days averaging as high as 1000 yards per hour.

In less than a year twenty such machines could move as much dirt as was dug in the total dry land excavation for the Panama Canal.



This section of the ditch shows the overburden and rock strata.

Cutting irrigation ditch through Snake River rock ▲ ▲ ▲ ▲

Draglines used by Derbon Construction Company in unusual Idaho canal excavation.

AN exceptionally difficult piece of excavation is being handled by the Derbon Construction Company of Seattle, prominent engineers and constructors of dams, canals, highways and railways, in digging an Irrigation Canal for the United States Bureau of Reclamation near Milner, Idaho. This work, started in November, 1928, consists of excavating 230,000 cubic yards of rock and 120,000 cubic yards of other material. The job is expected to be completed in November of this year.

The Minidoka Gravity Extension, as the canal is called, will be approximately seventy miles in length, the excavation being much heavier at the upper end. The Derbon section now under construction is 8,000 feet in length with an average cross section running 34-foot bottom, ¼ to 1 sides, and depth from 20 to 42 feet.

The ditch carries 3,700 second feet of water which will be used to supplement present irrigation on the Minidoka Project and also to increase the supply of the North Side Canal Company in this portion of the Snake River Valley. Water comes from the Snake River, the immediate storage being at the American Falls Dam near Pocatello, Idaho. The land in the irrigated territory is extremely rich, producing potatoes, beans, sugar beets and diversified farm crops.

The large amount of rock excavation is from Snake River lava, a formation that is seamy and breaks into large blocks along the seam lines. The job is unusual in that the Derbon Construction Company is using draglines for this extremely difficult digging.

Cuts Run as Deep as 42 Feet

The equipment used consists of one 50-B Bucyrus-Erie Diesel dragline, one Class-14 Bucyrus-Erie Diesel-electric dragline, one Marion 60 shovel and one P. & H. dragline-shovel.

At the time of writing, the Bucyrus-Erie Class-14 is operating ahead in the ditch taking out the initial cut in the rock. This is followed by the Marion 60 in the bottom of the cut making the final cleanup, and loading into five-yard skips

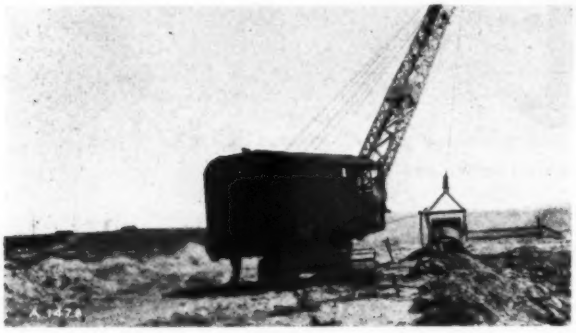
This Snake River lava rock fractures along the seams into large blocks, making it extremely difficult to handle. It was excavated successfully with draglines, however, to the point where depth of ditch called for a shovel on the clean-up cut.

which are hoisted and dumped on the spoil bank by the Bucyrus-Erie 50-B acting as a crane. The P. & H. is used in stripping the light overburden from the rock.

Up to the point where the cuts, which run as deep as 42 feet, made it impossible to bottom-up with anything else than a shovel, the Bucyrus-Erie 50-B operating as a dragline handled the clean-up cut.

President Bonny Says 50-B Diesel Finest Piece of Equipment He Has Ever Seen

The yardage record per machine can only be given approximately, because each machine is



P. & H. dragline used for stripping the light overburden from the rock strata.

doing only part of the excavation required. However, the 50-B dragline averaged approximately 150 cubic yards of rock per shift, and the Class-14 175 cubic yards of rock per shift. Shifts were eight hours. As pointed out by President J. B. Bonny of the Derbon Construction Company, "You will note that the yardage record is comparatively low, due to the extreme difficulty of handling material, and can in no way be compared with ordinary rock excavation. All the Bucyrus-Erie equipment," he continues, "has operated in an exceptionally satisfactory manner. We will unhesitatingly state that we believe the 50-B the

Notice type of material this Class-14 Diesel-Electric dragline is handling.

finest piece of equipment we have ever seen, from both the standpoint of operation and maintenance. Our 50-B has operated now for about two and one-half years, three shifts continually, without a major breakdown. During all this time the machine has operated under extremely difficult conditions."

45,000 Cubic Yards per Month Averaged on Kittitas Canal Job with a 50-B Dragline

This Bucyrus-Erie 50-B dragline, on Derbon's Kittitas work in Washington, averaged 45,000 cubic yards per month, excavating material which was almost entirely loose or solid rock. Since the transfer to the Idaho work, the operation has also been continuous three shifts both as dragline and crane, and the machine has handled very heavy

(Continued on Page 443.)

"This 50-B Diesel dragline," says President Bonny, "has stood up under unusual abuse, practically without delay or breakdowns through two and one-half years of continuous day and night operation."

FIELD NOTES

Laying up machines for Winter — Here's how

General — All Machines

When machines are to be laid up for an appreciable period, especially during the winter months, attention to the following suggestions will insure the proper operation of the machine when put back in operation.

Run machine up on pads or timbers so that cats clear the ground at least four to six inches. Wash off all dirt and unnecessary grease from machine, using steam or hot water if available. Special care should be taken in cleaning cats to see that all dirt is removed. It is a good plan to obtain a supply of used crankcase oil and flush over caterpillar tread belts.

Grease all gears and cables liberally with gear compound. In the case of chain drive caterpillar mounted machines apply a liberal supply of gear compound to drive chains.

Flush out all bearings by forcing a quantity of clean grease through grease cups and force feed connections. During time that these bearings are being greased, the machinery should be kept in motion to assure that grease is worked in the bearings properly. It is also a good plan to jack up machine and put propelling machinery in motion so that when greasing propelling machinery grease will work in properly.

It is, of course, well worth while to give the entire machine including cab, boom, dipper handle, dipper, and all machine parts a good coat of paint.

Steam Machines

Get all the engines hot, then pump oil into the steam lines by hand with the lubricator. After having pumped in about ½ pint of oil, turn the engine over a few times with steam at low pressure (about 40 or 50 pounds) so as to work the oil through the engines. Do not run the engines too long as this will blow most of the oil out.

Keep on pumping in oil, ½ pint at a time, running each of the engines for a few moments after each time until you have pumped in at least two quarts of oil.

Remove the gland packing from all engines and see that the valve stems and piston rods are thoroughly greased to prevent rusting.

Grease all connections and all parts of the machine where rust may accumulate.

Loosen the springs on clutch and brake bands.

Remove the piston from ram cylinder and wrap in an oiled cloth. See that all moisture is drained out of the steam ram and that it is thoroughly saturated with oil. Place a piece of waste saturated with oil in the open end of the ram cylinder.

Wash the water tank out thoroughly, drain out all water and paint inside of tank.

Cleanse the strainer in water tank.

Wash the boiler out carefully.

Some engineers fill their boilers with cold water and then pour in several gallons of crude oil. By allowing the cold water to run out slowly, the crude oil forms a coating on the inside of boiler which protects it against rust and softens any scale formations. (When this is done, it is absolutely necessary to carefully cleanse the boiler before putting it back into service by boiling it thoroughly with a solution of soda ash. It is, of course, advisable to open the hand holes of the boiler after the boiling process and wash out any scale sediment.)

Leave out, at least, one hand hole plate in bottom of boiler.

Clean soot out of all flues.

Clean outside of boiler, including top and bottom flue sheets, with a wire brush. Do the same to inside of fire box.

Remove safety valve and injectors. Wrap and store in safe place.

Open all globe valves.

It is recommended that the boiler be thoroughly painted on its outside, including top and bottom flue sheets and inside of fire box with steam cylinder oil. If the machine is to be stored outside, it is necessary to cover the stack to keep out rain and snow.

This Field Note will be continued in the November issue with suggestions for laying up gasoline, gas + air, Diesel, and electric machines. Don't miss it. You may be spared many days delay next spring by following these suggestions carefully.

Dam building in Algeria

Here we have a Bucyrus-Erie D-2 Diesel shovel working on "Construction du Barrage de Chrib sur L' Oued Cheliff" in Algeria, one of the French possessions in Africa. Hand labor in connection with the project is performed by turbaned natives who wear the baggy "plus fours" made familiar by some of our "shiek" movies. Interested visitors dressed in the long cloaks and hoods of the desert tribes come to watch this American-made "devil" tear dirt and rock for the dam from the adjacent hills.

The EXCAVATING ENGINEER

A Monthly Publication Devoted to Excavating and Allied Subjects

REGULAR SUBSCRIPTION: $1.00 a year for 12 numbers.
SPECIAL SUBSCRIPTION: Upon application on card inserted in this number, subscriber's name will be placed on Rotating List, whereby he will receive The Excavating Engineer frequently (not regularly) free of charge.

THE EXCAVATING ENGINEER PUBLISHING CO.
F. O. Wyse, Manager-Editor Arnold Andrews, Associate Editor
South Milwaukee, Wisconsin
Printed in the U. S. A.

The business situation

The eyes of those who would estimate the volume of business in the immediate future are turned toward the money situation. In spite of the constant endeavors of the Federal Reserve Bank to curb excessive speculation on the stock market, brokers loans have been constantly ahead. Stock prices have risen still further, and the demand for money has carried the re-discount rate up to six per cent. This situation is an important factor, and should be watched carefully during the next few months.

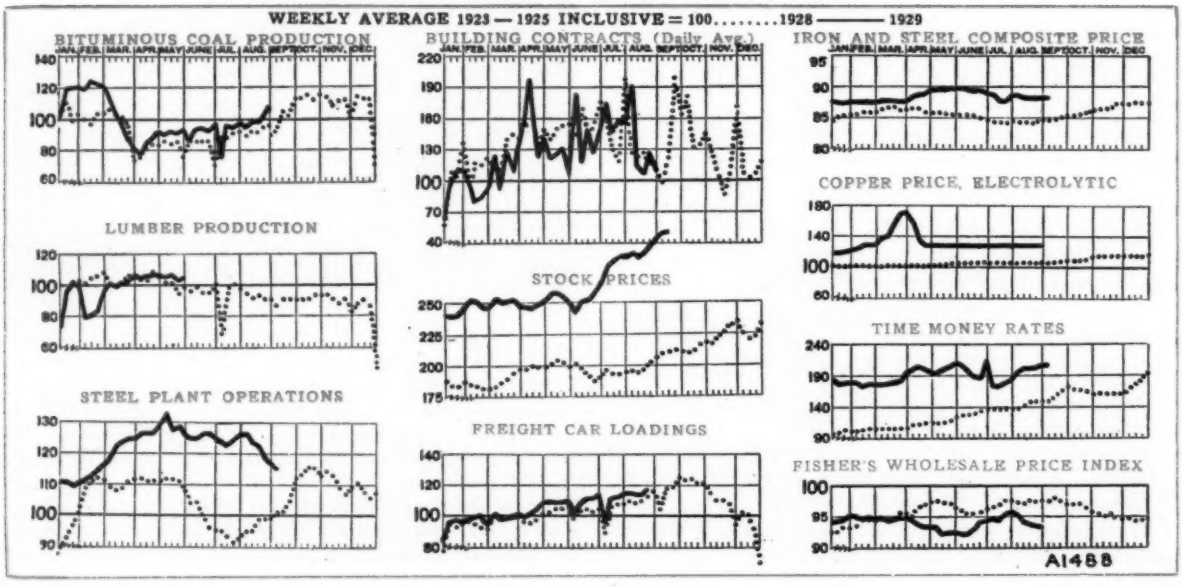
On the other hand business in general is doing remarkably well. Manufacturing activity has been maintained at a very high level, even during the last two months, when there is normally a seasonal decline due to hot weather and vacations.

The National City Bank in New York points out that most of the key industries are free from any serious accumulation of inventories and in a sound position. In certain lines where production has run ahead of shipments, as in the case of automobile tires, prompt steps are being taken to control output, while in other lines where signs of over-production appeared not long ago, as in cotton goods, the situation has already been corrected. Throughout the Summer, now drawing to a close, employment of labor has been maintained at the highest level for several years back, and payrolls are estimated to have been approximately ten per cent larger than last year. Favorable conditions mark the arrival of the Autumn season, and confidence in a large wholesale and retail trade is increasing.

Tightness of the money market has apparently not yet had any harmful effect on general business, save in certain classes of building construction, such as municipal and other public improvements. Such barometers as electric power consumption indicate that manufacturing activity in the major industries is still running ahead of a year ago, even though there has been some decline from the peak of last Spring. Railroad freight car loadings are higher than in any previous year. Steel mills are operating at better than 90 per cent of capacity, and ingot production points to a new high record of approximately 58,000,000 gross tons for the full year, compared with 49,853,000 tons in 1928. Coal production has been well maintained during the Summer, and has begun its seasonal expansion earlier than usual this year. Machine tool sales are in better than normal volume, according to a recent survey by The American Machinist, which notes a large demand for standard production machinery, and an indication that September will bring improved conditions in the small tool field also. Railway equipment buying has enjoyed a marked recovery this year, the orders placed for freight cars being 162 per cent larger than in the corresponding period of 1928, and orders for locomotives 228 per cent larger. Prices of cement, on the other hand, have just been reduced 20 to 30 cents a barrel, reflecting over-production and foreign competition.

In the construction industry we are a little inclined to compare this year's record only with that

WEEKLY BUSINESS INDICATORS



of last year — a record year. Even when this is done, the volume for the first seven months of 1929 shows a decrease of only 8.2 per cent from 1928. There has been much shifting of the activity, however, some classes of construction going ahead actively while others have been materially cut down.

The August contract record in the 37 states east of the Rocky Mountains showed a somewhat pronounced decline following the favorable record established during the preceding month, according to the F. W. Dodge Corporation. The month's volume amounted to $488,882,400, a decline of 25 per cent when compared with the July total, and a decline of 5 per cent when compared with August of last year.

Of the eight districts, two showed increases over the preceding month, and three showed increases over August of last year. In the volume of new work reported as contemplated, however, every district except one showed increases over July 1929 and all except three districts showed increases over August 1928.

According to major classes, the August construction-contract record showed the following totals: $146,088,200, or 30 per cent of all construction, for residential buildings; $119,287,800, or 24 per cent, for public works and utilities; $75,265,000, or slightly more than 15 per cent, for industrial buildings; $71,955,400, or slightly less than 15 per cent, for commercial buildings; and $32,349,400, or 7 per cent, for educational buildings.

Contracts awarded during the first eight months of this year in the 37 states amounted to $4,156,865,300, as compared with $4,545,270,100 for the corresponding period of last year, a decrease of 9 per cent.

New work reported as contemplated during August amounted to $657,832,000. This total showed an increase of 37 per cent over the preceding month, and an increase of 7 per cent over the corresponding month of last year.

According to figures by the Bureau of Mines the cement industries production during the month of August was at the rate of 86.1 per cent of capacity. This figure is an indication of the cement industries business anticipation, and shows a production of .9 per cent less than August 1928, with shipments at 4.8 per cent higher. Stocks at the mills, however, were 3.8 per cent more than a year ago.

Good roads increase popularity of automobile

"Lack of suitable roads rather than economic conditions has retarded the automobile's popularity in countries which are lagging behind," declares the American Motorists' Association. "The United States, with 3,005,614 miles of road, has a greater total mileage than all of the rest of the world combined, and this fact, more than any other, perhaps, explains why there is one automobile for every five persons in this country."

Of the total 6,582,001 miles of improved and unimproved road in the entire world, 3,574,731 miles, or 54 per cent, are found in the Western Hemisphere. Asia, with its enormous area and population, has less than a half million miles of highway, Africa only 205,902 miles, Europe, 1,976,037 miles, and Oceania, including Australia and the Pacific Islands, 406,874 miles. Europe, however, has nearly four times more improved mileage than the United States.

In the Western Hemisphere there is one mile of road to every 4.4 square miles of area, seven automobiles for every mile of road, and 9.2 persons for every automobile in use. In Europe there is one mile of highway for every 5.2 square mile of area, 20.7 automobiles for every mile or road, and 100.4 persons for every automobile in use.

"Mileage statistics of the world illustrate that in all lands there are available markets for automobiles, which can be cultivated through the encouragement of good roads," the American Motorists Association's statement says.

Our front cover

Sauk River logging camp with Whitechuck Mountain in the background.

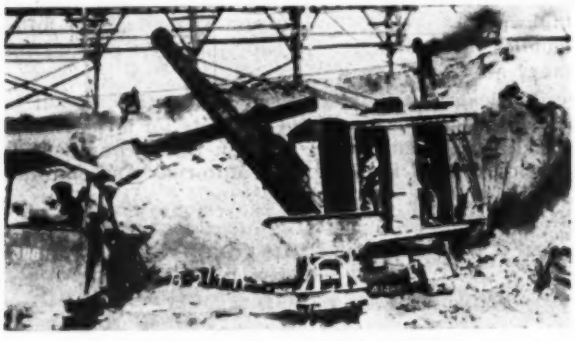
This month our front cover shows a stand of red cedar along one of the Sauk River Lumber Company's logging railroad grades. A Bucyrus-Erie D-2 Diesel is used by this company for constructing grades for logging lines, short spurs, sidings, and all sorts of odd grading jobs. The Diesel is of particular value on logging operations, not only because of fuel economy and the convenience of getting fuel to the machine but also because of the elimination of fire risk.

Perhaps an idea for camp construction for dirt movers may be obtained from the illustration on this page showing the Sauk River camp at Whitechuck Mountain in the State of Washington, some 60 miles north of Seattle. These modern camps are built on railroad trucks, set out on sidings, and include such conveniences as shower baths, etc. When the camp is to be moved, in addition to disconnecting pipe lines, all that is necessary is to knock out the wheel clamps and couple on a locomotive.

An Aberdonian and a Yorkshireman foregathered in Hull. They discovered they were both thirsty, but naturally neither of them had any money. A bright thought struck the Yorkshireman. "I know a barmaid who is very forgetful. If you engage her in conversation, she can't remember being paid or not. I'll go in and see if it'll work."

In he went, and in a short time he came out to find Jock patiently waiting. "Weel, hoo did ye get on?" "Fine, Jock, you try it on." In Jock went, and after ordering his glass of whiskey, he engaged the bar-maid in an interesting conversation and after ten minutes had passed he casually remarked: "Ah, well, I'll hae to be going. Whit aboot my change?"

Improving French harbor on Mediterranean



Above is a Type A Bucyrus-Erie shovel working on harbor improvements at Marseilles, France. Double track spotting saves delay for cars. Hauling is over narrow gauge tracks in side dump cars hauled by internal combustion engine locomotives. Hard digging is encountered, as you will notice by the teeth marks which extend clear to the top of the bank.

42 States building 21,664 miles of roads

A census of state highway departments just completed by the American Road Builders' Association shows an estimated 21,664 miles of roads to be constructed this year in 42 states.

A questionnaire was sent to all states, and figures received from all except Connecticut and Nebraska indicate $744,266,000 available for maintenance and construction this year. This sum includes highway funds apportioned by the Federal Government to the states, and funds raised by gasoline taxes, motor vehicle registration and various other methods.

The estimated county expenditures for 1929 are shown to be $405,150,000 in 40 states. This added to the state funds shows a grand total of $1,149,416,000 which is a conservative figure of the total money that will go into good roads during 1929 or the fiscal year 1929-30. The Bureau of Public Roads' estimate is $1,315,000,000.

In hard surface building, Iowa, which now has 1,900 miles, heads the list of states in mileage to be constructed, and will pave 750 miles each year in 1929-30-31, making a total of 4,150 miles of paved road.

Kansas has a 1929 construction program with a total of 1,875 miles, which included 800 miles of grading, 1,000 miles sand and gravel, and 75 miles hard surface.

New York, with 10,840 miles of all types of road, will add 700 miles this year and "700 plus" in 1930.

Ohio, with 6,660 miles hard surfaced and 3,837 miles of gravel roads, will add 300 miles this year.

Pennsylvania, with 7,485 miles hard surfaced in her total mileage of 12,756, will add 500 miles in 1929.

Texas, with 18,000 miles of all types, will add 800 miles this year, and "probably the same" in 1930 and 1931.

West Virginia will add 360 miles of hard surface each year over the three-year period. Wyoming will add to her present 39 miles of hard-surfaced roads, 390 miles—of all types—in 1929, and 375 miles each in 1930-31.

Michigan, with 3,452 miles of all types, will build 560 miles this year and 500 each in 1930-31, making a total of 5,012 miles.

Alabama expects to build 1,100 miles of road in 1929. Illinois this year will add 600 miles of hard surface to her present 7,525.

Kentucky will hard surface 382 miles of road this year, and expects to exceed this program in both 1930 and 1931.

North Dakota, which now has only 15 miles of hard-surfaced roads, will build 1,000 miles of all types annually in 1929-30-31.

Missouri will build 1,291 miles, all types, this year, and follow next year with 917 miles more, giving that state a total of 2,876 miles hard surfaced.

Mississippi is the only state which has no funds nor estimate for construction this year. The state has matched Federal aid with county bond issues in past years but several proposed bills this year have failed according to the state highway department.

The census further shows that in 22 states all construction is by contract, 23 states employ some day labor, when bids are too high, in emergencies, and on small projects, and convict labor is used on roads in Florida, Michigan and Virginia.

At least six states divide gas tax between the state and counties, Florida giving the counties four cents of her six-cent tax, and Mississippi giving the counties three cents out of five. In the others, the states take the larger proportion.

Eight states hope to secure funds for road construction by bond issues in the near future. New Mexico and Maine expect to complete bond issues this year, Mississippi anticipates an issue in 1930, Maryland and Iowa in 1931, the latter for $100,000,000 — Alabama and Georgia are desirous of issuing bonds with the latter state seeking $100,000,000.

"Cold Dogs" and Dikes

(Continued from Page 435.)

dry out, however, and would not give as satisfactory a levee.

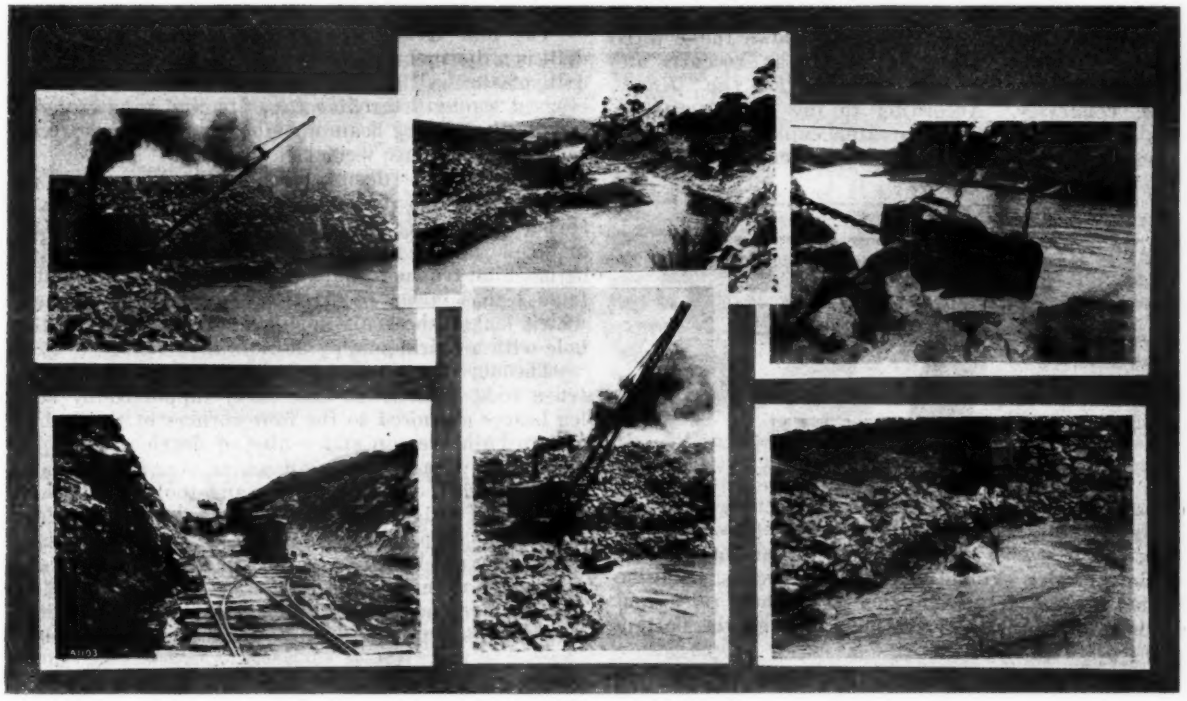
500,000 Yards of This Type of Levee Built Previously at Beardstown on Illinois River

"Slopping" levees in this manner is a proven success, according to Mr. Woest, who built 500,000 yards of them along the Illinois River at Beardstown with the same outfit. Beardstown always had been a "football" for the Illinois River, and for a number of years the residents of that village had boats tied to the roofs of their homes to be used in case of emergency. The "Slop" levees and cement dikes built at Beardstown under direction of the Division of Waterways have given new life to the community.

In Peoria, immediately across the river from East Peoria, the Peoria Sanitary District plans to build levees on the same pattern on a much larger scale. As this work will be entirely along the river, floating equipment will be used.

"Cold Dogs" weren't much of a success from the confectioner's point of view, but it seems as if the idea applied to levee construction is far from a failure.

New Zealand Public Works digs a diversion mile channel through solid rock



TO reduce flooding on a large area of swamp, the New Zealand Public Works Department have recently constructed nearly a mile of diversion channel through solid rock and removed rock bars from the Wairua River.

For this work Bucyrus-Erie one-yard steam shovels and draglines, all of them nearly eight years old, were used. The group of pictures shown above show largely the work of removing the rock bars with one of the machines rigged as a dragline, equipped with a 50-foot boom and 1-cubic-yard bucket. The rock had, of course, been previously drilled and shot. This is heavy work for a dragline, but it was the only practical way of removing the rock bars. Only the old dragline buckets were used on this work. In the lower left of the group of pictures is shown one of the Bucyrus-Erie machines equipped as a shovel, excavating the diversion which has a bottom width of 45 feet and a depth averaging about 20 feet.

In addition to these two machines there were two additional Bucyrus-Erie one-yard draglines used in excavating further diversion of the river in clay country. These diversions had a total width of 110 feet, bottom width of 60 feet and a depth of 20 feet.

This work is in charge of R. C. Lough, Assistant Drainage Engineer for the New Zealand Public Works Department. Photographs and the information used in preparing this article were received through the courtesy of Mr. Lough.

Snake River irrigation ditch.

(Continued from Page 438.)

and difficult material, making for extreme conditions of wear and tear.

Fuel consumption on the 50-B has averaged approximately two barrels of Diesel oil per twenty-four-hour day, and for the Class-14 two and one-half barrels for the same period. Cost, delivered to the draglines, runs about eleven cents per gallon.

Drilling is handled with three Ingersoll-Rand N-72 drills, and three jackhammers are driven by an 800-foot stationary Chicago Pneumatic electric-driven compressor. Blasting at present writing is with Giant 40 per cent dynamite, the holes being first sprung with 60 per cent.

Charles Lybecker is superintendent in charge of this work for the Derbon Construction Company.

EQUIPMENT YOU OUGHT TO KNOW ABOUT

"Double Automatic" Mine Car

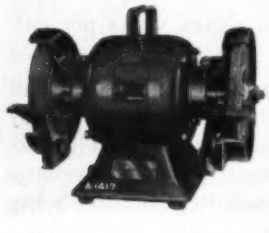
The accompanying illustration shows the S & D Griffith "Double Automatic" Mine Car, recently announced by *Sanford-Day Iron Works, Inc., Knoxville, Tennessee.* According to the manufacturers, this new mine car has greater capacity than any other type for the same overall dimensions. It has

the same principle of automatically opening and closing of the bottom doors as the S & D Griffith Standard "Automatic," with the additional feature of the side sections, which extend out over the wheels, being so hinged to the frame channel that they raise and discharge their part of the load through the bottom also.

The operation is simple and perfect. As the trip of cars moves across the storage bin, a tripping device placed alongside of the track comes in contact with a latch lever on each car, causing the bottom doors of each car to dump first, discharging the central load, and immediately thereafter, as the trip proceeds, a device raises the sides of each car and dumps them. This same device lowers the sides immediately to their normal position. The bottom doors close by passing over a knuckle in the center of the track at the other end of the bin as the trip passes over. A motorman and trip-rider, the manufacturers say, handling the entire operation, can dump 20 to 30 cars a minute.

New Portable Bench Grinder

A new portable electric bench grinder has just been announced by the *Black & Decker Manfacturing Company of Towson, Maryland.* This new grinder, shown in the illustration, is of anti-friction ball-bearing design, and maintains wheel speeds under load much more easily than do other types, according to the manufacturer. Adapted to alternating current only, this grinder will maintain a 3600 r.p.m. spindle speed on 60-cycle current. In writing the manufacturers for further information, please mention *The Excavating Engineer.*



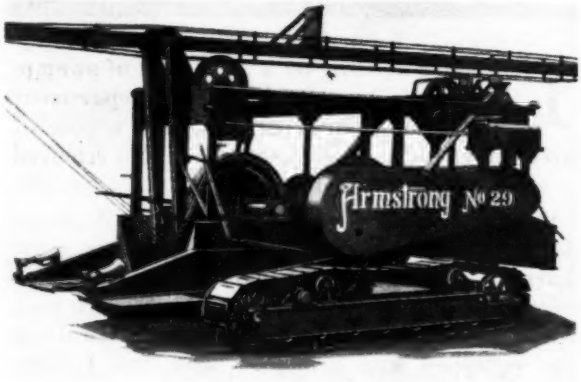
New Blast Hole Drill

The new Armstrong No. 29 all-steel blast hole drill is a distinct departure from the so-called quarry drill of the well driller type, being designed for increased strength, greater capacity and greater moving ability. Every beam upright, cross bar, brace and truss is electric arc welded in position.

The derrick — designed especially for wire rope — is equipped with improved wire line shock absorber, preventing any shock or vibration of the tools or steel cable from being transmitted to the derrick or machine frame. The shock absorber also provides from 4 to 6 inches of elasticity on the drilling line, which makes the tools spring off the bottom of the hole with a quick, snappy motion.

The derrick is constructed of channel steel with truss rods, both front and back, supported by stiff leg braces anchored to the four corners of the frame, and to both the top and center of derrick, which, it is claimed, permits moving machine over the roughest ground with the derrick raised and tools in position. Full-length alligator treads provide 22.2 square feet of bearing area, and each tread is 11 feet 3 inches long. The machine can be turned around in a space no greater than its own length.

The machinery and its arrangement are particularly adapted to direct gas engine or electric drive.



Power is applied to the drilling motion through heavy steel, machine-cut gears.

One of these machines installed in an open pit mine on the Mesaba Range of Minnesota drilled 630 feet of six-inch hole in 27½ hours — moving 21 times, an average of 22 feet 11 inches per hour — including moving time, according to the manufacturers. Although designed especially for drilling blast holes in mines and quarries, the No. 29 is also ideally adapted for churn drill prospecting, coal stripping, railroad construction, road building and all work involving heavy rock excavation. The bull reel has a capacity to spool 1000 feet of ¾-inch steel cable.

When writing the *Armstrong Manufacturing Company, Waterloo, Iowa,* for additional information, please remember to mention *The Excavating Engineer.*

SHOTS FROM THE FIRING LINE

National Paving Brick Manufacturers Association Meet at Chicago, December 4th, 5th and 6th

The Twenty-Fourth Annual Meeting of the National Brick Manufacturers will be held at the Palmer House, Chicago, Illinois, December 4th, 5th and 6th.

An excellent program will be presented by leading engineers and paving authorities. There will be discussions of such subjects as the resurfacing of old pavements with vitrified brick, the salvaging of old bricks in reconstruction projects, the proper use of bituminous fillers in vitrified brick pavements, efficient management of brick paving contracts and regional highway planning for metropolitan areas.

The sessions for the last two days will be open to the general public and include papers and discussions of the latest practices in the design and construction of streets and highways, particularly the vitrified brick type. There will be a banquet Tuesday night, December 5th, and business conferences will be held on the first day of the meeting. W. A. Bonitz, President of the Crescent Brick Company, Pittsburgh, Pennsylvania, is President of the National Paving Brick Manufacturers Association, and George F. Schlesinger is Chief Engineer and Managing Director.

Annual Asphalt Paving Conference to Be Held October 28th to November 1st at West Baden Springs, Indiana

"Paving of the farm-to-market roads with low cost surfaces," will be the keynote of the Eighth Annual Asphalt Paving Conference to be held at West Baden Springs, Indiana, October 28th to November 1st.

The conference will be held under the auspices of The Asphalt Association and the American Association of Asphalt Paving Technologists. Among the speakers will be Samuel H. Thompson, president of the American Farm Bureau Federation; R. W. Crum, Washington, D. C., director, Highway Advisory Board of the National Research Council; John J. Brown, Indianapolis, Indiana, director, Indiana Highway Commission; A. H. Hinkle, Indianapolis, Indiana, maintenance engineer, Indiana Highway Department; Leroy M. Law of St. Louis, Missouri, president of The Asphalt Association; W. J. Emmons, Ann Arbor, Michigan, president, American Association of Asphalt Paving Technologists; Prevost Hubbard, New York City, chemical engineer of The Asphalt Association; J. L. Cresap, Tallahassee, Florida, chief engineer, Florida State Highway Department; W. C. Buetow, Madison, Wisconsin, chief engineer, Wisconsin State Highway Department; J. H. Dingle, City engineer of Charleston, South Carolina; and John W. Davitt, an engineer and contractor of Jersey City, New Jersey.

Numerous other government, state, county and city highway officials, both from the United States and Canada, will discuss the latest methods evolved for the construction of low-cost asphalt highways. Leaders in the automotive industry and officials of national automobile associations will discuss plans for paving the back country roads so as to relieve traffic congestion on the main highways, especially on holidays and during week-ends. One entire session will be devoted to the co-operative study of the low-cost roads now being conducted jointly by the United States Bureau of Public Roads and The Asphalt Association.

Canada

British Columbia Notes

BY E. P. DOYLE

Premier S. F. Tolmie, in a recent speech, revealed plans of the Provincial Government for construction of main trunk highway to connect United States with Alaska. Details are not available at present. The road is expected to yield considerable revenue to the Province as well as open up an immense tract of valuable land.

Alberta Notes

The Minister of Public Works of the Department of Alberta has recently announced that this province **will spend over $5,000,000 this year on roads,** ferries and bridges. Of this amount, $1,500,000 will be used for the construction of main highways, principally Peace River and Jasper Highways, and $1,150,000 on secondary and district highways. $500,000 will be spent on maintenance of main highways, $57,000 on ferries and $60,000 on bridges.

Manitoba Notes

An appropriation of $3,600,000 was voted by the last Manitoba legislature to be expended during 1929 in the construction of roads throughout the province, including the short portion necessary to complete the trans-Canada Highway. According to an official statement work has already been started on the construction of 350 miles of trunk highway and the regraveling of 275 miles of roadway.

Ontario Notes

Geo. Mills and Sons, Toronto, Ontario, has secured grading contract for first section of new highway from Montreal bridge of Laprairie. The highway will be 150 feet wide and nearly 5 miles in length. The Provincial Department of Roads, Parliament Buildings, Quebec, are supervising construction, while the Kennedy Construction Company, Ltd., Montreal, has the general contract. Cost of constructing the first section of the highway will be about $500,000.

Quebec Notes

The Alcoa Power Company, Limited, subsidiary of the Aluminum Company of America, use a plank roof, back and part side to protect the house of their Bucyrus-Erie 50-B electric from blasted fragments. It is hard rock excavation on this Shipshaw Canal intake on the Chute-a-Caron Development, as you can see. About 150,000 yards of excavation is required on this operation. In addition to the 50-B there is also a Bucyrus-Erie railroad type steam machine working across the cut. A Bucyrus-Erie 120-B 4-yard electric is handling rock excavation on another portion of the job. The by-pass and tailrace channel on the same project require 1,000,000 yards of excavation.

Hon. J. E. Perreault, Minister of Highways, Province of Quebec, in a recent speech stated that his department will shortly commence construction work in the northern section of the Province in order to open up the agricultural and mining district. In this section of the Province a new highway 200 miles in length, will, within the next two years, connect Maniwaki and Amos. The Hull-Maniwaki Highway has now practically been completed, and, with the opening up of the new stretch to Amos, the entire northwestern section of the Province will be thrown open by means of improved roads to

SHOTS FROM THE FIRING LINE — Continued

connect with Ottawa, Quebec and Montreal. An improved highway already exists between Senneterre, Amos, Macamic, and then south to Lake Temiskaming, where a connection is made with the Ferguson Highway covering northern Ontario mining sections and with the North Bay-Ottawa route which follows the south (Ontario) bank of the Ottawa River.

F. H. Cothran, formerly Vice-President Duke-Price Power Company, Ltd. and Quebec Development Company, Ltd. and more recently Chief Engineer Piedmont & Northern Railway, has been elected Vice-President and General Manager of the Beauharnois Construction Company, with offices at Beauharnois, Quebec. This Company will develop power in the Soulanges Section of the St. Lawrence River.

The Societe Generale de Ponts et Chausses Ltd., Montreal, Quebec, has secured general contract for second section of highway from Laprairie to the bridge. This section will be 150 feet wide and over 5 miles in length and will cost about $800,000.

Eastern Notes

BY G. R. ENGLAND

Robert E. Tompkins of Rochester, New York, recently ran into some very difficult working conditions in excavating for an arch bridge at Honeoye Falls. Mr. Tompkins was using a Type 1030 and excavated 4500 yards of stone, masonry and dirt at the site of an old bridge which was being replaced by a modern structure. The creek he was working in is the outlet to Hemlock Lake which supplies Rochester with water. Heavy rains in the spring caused the water to rise and the keepers tried to hold all the water possible for later use. It was finally necessary, however, to open the slush gates which flooded areas all along the creek to a depth of four feet. When the flood came Mr. Tomkins parked his shovel on an old abutment and waited for the water to subside. Because the high water continued, it was decided to go ahead with the

work without further delay, and the little 1030 proved to be quite a "water-dog" as the above picture shows. The old road bridge was torn down without blasting; and the Type 1030 excavated for new abutment on first one side of stream and then on the other. The view above shows the shovel standing in the water while digging for abutment for new bridge. Note small dam hurriedly thrown up to quiet the water around the shovel.

Al Jonsoni, one of our old friends, is operating a Bucyrus-Erie 50-B for the **Long Beach Dredging Company** on Long Island. The 50-B is working three shifts and a Bucyrus-Erie D-2 is going in soon on the job to speed up the work. The Long Beach Dredging Company are leveling off hills for

CARS THAT
REALLY CUT COSTS

WHEN you buy a car from Koppel—you buy a car designed and built to give maximum life and low cost upkeep. Reinforced at every vulnerable point—solid and rugged, Koppel Cars not only operate smoothly, but they *stay on the job.*

Send us your inquiries—we build a complete line of cars for every haulage need.

Koppel Industrial Car & Equipment Co. · Koppel, Penna.

Sales Offices: NEW YORK PITTSBURGH CHICAGO SAN FRANCISCO

TRADE MARK REGISTERED
KOPPEL
U.S. PATENT OFFICE

In writing to Koppel Industrial Car & Equipment Co. please use post card bound in the center of this number.

A Nation Wide Distributing Organization — *at Your Service*

Williamsport Wire Rope is a quality product—and its grade is certified at the factory by the Telfax System of Tape Marking, thus enabling you to check its grade instantly—no matter how many hands it passes through—a protection of priceless value. Yet it costs nothing to obtain.

Large warehouse stocks located in all important shipping centers.

WILLIAMSPORT WIRE ROPE COMPANY

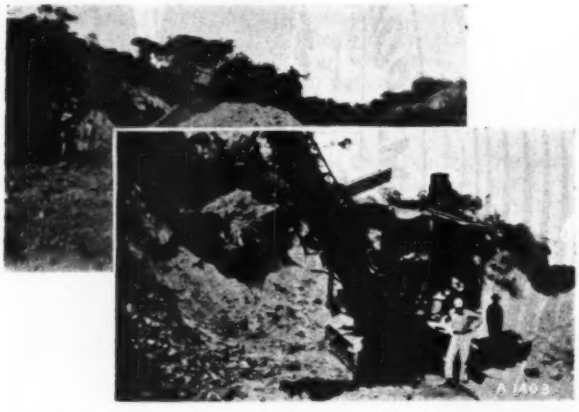
Main Office and Works: **Williamsport, Pa.** *General Sales Offices:* **Peoples Gas Bldg., Chicago**

WILLIAMSPORT

In writing to Williamsport Wire Rope Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

real estate developments right along the ocean beach. Al tells us the boys have lots of fun watching the bathing beauties parade, and that the shovel usually has an interested and interesting audience. The beach season is nearly over, but there are still enough good-looking girls in bathing suits around to keep the boys from getting lonesome.



W. S. Kimball, who has been operating a Bucyrus-Erie for the International Petroleum Company in Colombia, South America, for the last fifteen months, sends us the above photographs which he brought back from the tropics. He says the International Petroleum Company have a nice place down there, with two Bucyrus-Erie 20-B's, one Type A, two Gas + Airs and two Type B machines. He liked the camp and the job, but contracted a severe cold, and the doctors advised a change of climate for his bronchial trouble and sent him home. At this writing he is not yet connected with a position, and is looking for a good road job where he hopes to find one of the Bucyrus-Erie Diesels. His present address is 1640 Gales Street, N. E., Washington, D. C.

Operator Robert M. Rogers sends us the above picture of the Bucyrus-Erie ¾-yard steam shovel he is piloting for the District Foundation Company, Incorporated, of Washington, D. C. The machine is at work on a project involving 22,000 cubic yards of excavation for oil tank installation of the Tidewater Oil Company whose office is in New York City. The larger tank shown in the picture is 60 feet in diameter and 42 feet high. Pipe lines will be run from the Potomac River, which is about 300 yards east, and the tank will be filled by pumping from scows on the river. The plant is on the Southern Railway just outside of Alexandria, Virginia. Excavation was completed in August.

The Godwin Construction Company is excavating 450,000 yards for the basement of the new hospital between 67th and 70th at York Avenue in New York City as shown above. Seven shovels are handling the excavating — five being Bucyrus-Eries and two Osgoods. The new Bucyrus-Erie 41-B, which recently joined this fleet, is in the background with only the smokestack showing. You can see Queensboro Bridge at the right.

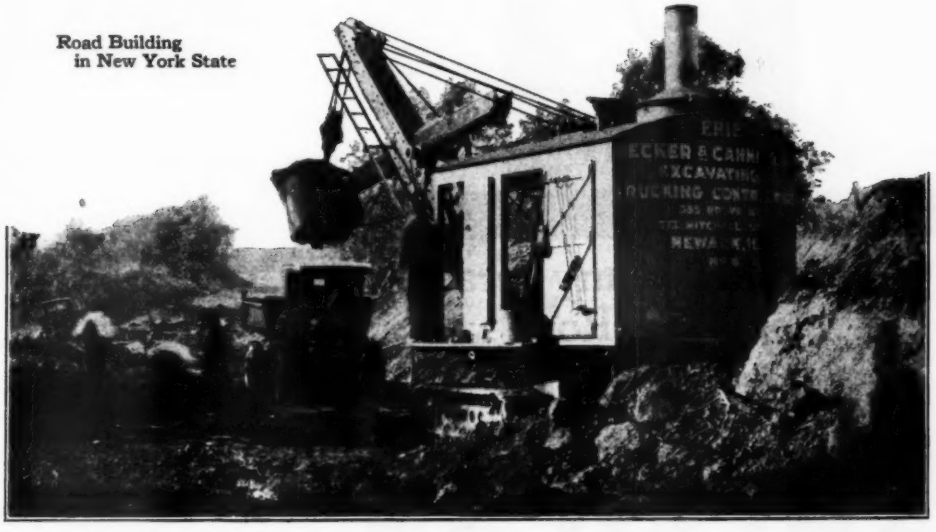
Picture of a Contractor who finished his job on time without a shutdown
H.L.&McCANNA
FORCE FEED
Lubricators
POSITIVE OILING HELPS DO IT
Types and sizes for oiling all classes of equipment.
Catalog on request.
H.L.&-McCANNA Co.
2343 - NELSON ST. - Chicago
THE MOST COMPLETE SERIES OF ALLOYS FOR INDUSTRIAL USE
FORCE FEED LUBRICATORS · PROPORTIONING PUMPS · TANK CAR VALVES

Armstrong No. 29 Blast Hole Drill
Armstrong No 29
All Steel, Electric Arc welded. Full-length Alligator tread.
Equipped with wire rope which saves 75% of Cable costs.
Ask for Bulletin No. 98, giving full details.
ARMSTRONG MFG. CO., 919 Chestnut Street Waterloo, Iowa, U. S. A.

"HERCULES" RED-STRAND

REG. U.S. PAT. OFF.

WIRE ROPE



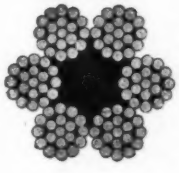
Road Building in New York State

An Economical Shovel Rope—and Why

IN the first place, "HERCULES" (Red-Strand) Wire Rope is economical because of the yardage it can handle for each dollar of its cost.

But that is not all. It costs money to put on a new rope, and production work stops while it is being done. The long life of "HERCULES" makes changes less frequent, which means a big saving in both time and money.

And the qualities that make "HERCULES" (Red-Strand) Wire Rope an economical shovel rope also make it economical for all kinds of work that requires strength and stamina.



Made Only by **A. Leschen & Sons Rope Co.** Established 1857

5909 Kennerly Avenue
ST. LOUIS

New York Chicago Denver San Francisco

In writing to A. Leschen & Sons Rope Co. please use post card bound in the center of this number.

There Are Many Grades
of Wire Rope

but it's the Right Grade for the Job that Counts!

Solve your Wire Rope problems by using—

AMERICAN
STEEL & WIRE COMPANY
WIRE ROPE

American Steel & Wire Company
Subsidiary of United States Steel Corporation

Sales Offices: Chicago New York Boston Cleveland Worcester Philadelphia Pittsburgh Buffalo Detroit Cincinnati Baltimore Wilkes-Barre St. Louis Kansas City Minneapolis-St. Paul Oklahoma City Birmingham Atlanta Memphis Dallas Denver Salt Lake City

U. S. STEEL PRODUCTS COMPANY
San Francisco, Los Angeles, Portland, Seattle
Export Representatives:
UNITED STATES STEEL PRODUCTS CO., 30 Church St., New York, N. Y.

SHOTS FROM THE FIRING LINE — Continued

New York State Notes

BY W. R. BEEBE

Everyone in Eastern New York State has heard of the **Cushing Stone Company of Schenectady, New York,** which has a stone quarry at Schoharie, one at Amsterdam and two sand and gravel plants at Scotia, with a stone quarry at Manny's Corners. In the plant at Amsterdam, Mr. Cushing has four three-quarter-yard Bucyrus-Erie steamers and one Gas + Air carrying the one-yard dipper. A number of quarry owners throughout the State of New York wonder at these small units in a stone quarry, but Mr. Cushing is a firm believer in small units and his success testifies to his good judgment, at least in regard to his own quarries. The above illustration shows one of the Type B's and a Gas + Air at the Cushing quarry at Amsterdam, with the insert showing Jack Fawcett of the Bucyrus-Erie Company, Joe Cushing, Superintendent of the Amsterdam plant, and Jack Adams, General Superintendent for the Cushing Stone Company. One does not always see Jack with his necktie, but occasionally he wears one. We have never been able to find him without his smile, however.

The above Bucyrus-Erie 50-B steam shovel is cutting into a rock bank which must be moved to make way for additional tracks between Poughkeepsie and New York on the New York Central Railroad. This four-tracking work is being handled by the Walsh Construction Company, and the above 50-B is one of five Bucyrus-Eries on the job. Note the false

THE SANDERSON CYCLONE DRILL CO., ORRVILLE, OHIO

DRILLS
and drill tools for every kind of Big Blast Hole Drilling

Catalog Mailed on Request

FOR HARD DIGGING & REHANDLING

Assurance of the ultimate in speed, in digging power, in long life, are yours with the new line of Blaw-Knox DREADNAUGHT BUCKETS—faster digging, faster rehandling and almost unbelievably long life without repairs. Ball Bearing equipped sheaves, scientifically hardened cutting lips and most rugged construction have made these Buckets immune to the distortion and wear that quickly send ordinary buckets to the scrap heap. They are built to give the user the utmost from his investment—to keep faith with the Blaw-Knox guarantee which places the name and reputation of the company squarely behind every Bucket sold. More than 1000 of these new Buckets are in use—testimony of users confirm our claims. May we quote on your requirements?

New completely illustrated catalog on request. Ask for Bulletin Number 1059

BLAW-KNOX COMPANY
618 Farmers Bank Bldg., Pittsburgh, Pa.

New York Chicago Philadelphia Boston Cleveland
Birmingham Detroit Buffalo San Francisco Baltimore

Sales and Service throughout every part of the United States.

BALL BEARING BUCKETS

BLAW-KNOX

TRADE MARK REG. U.S. PAT. OFFICE BLAW-KNOX

In writing to Blaw-Knox Company please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

back and roof to guard the shovel against damage from flying rock when blasting.

The Utica Construction Company, Inc., of Utica, New York, has a lot of work in the City of Utica and a State road job in Oneida County between Utica and Bridgewater of 7.27 miles. They also have a job between Utica and Slatens Bush of 3.2 miles, where they recently laid 1900 feet of concrete in one day on a nine-foot section. For excavating and material handling they use three Bucyrus-Eries; a Gas + Air, a Type 1030, and a Type B, and also one Northwest. Fred Cantwell is President, H. W. Roberts, Vice-President and W. R. Hayes, Treasurer. They also have their own asphalt plant. In the above group of illustrations, at the upper left, their Type B is shown handling material on one of their paving jobs with "Homer" Williams at the levers. At the right is "Jim" Baird, Superintendent on the Bridgewater job. Jack Cronin is Superintendent on the Slatens Bush job, but unfortunately we didn't have an opportunity to get him in front of the camera. In the lower left is Bill Hewitt on the Gas + Air. Bill has operated all types of machines, and says the Gas +Air is the easiest machine he has ever handled. At the lower right is Tom O'Connor on the 1030 waiting for the next truck to pull up under the dipper.

Pennsylvania Notes

BY J. S. WEAVER

Joseph Smith is operating a Bucyrus-Erie shovel for John Carson & Son on the North Side, Pittsburgh, Pennsylvania.

Al Segal is operating a Bucyrus-Erie shovel for R. V. Baldwin at Coraopolis, Pennsylvania.

Allen & Harris, East Liverpool, Ohio, report good progress on their work near Avella, Pennsylvania.

R. H. Adkins is operating a Bucyrus-Erie Gas + Air shovel for Weaver Crane & Trucking Co. at Belle, West Virginia. C. J. Walker is operating on a Lorain 75 on the same contract.

Freeland, McHale & Patten are making the dirt fly with their Bucyrus-Erie 31-B on the new Allegheny County Memorial Park. Thomas Scovel is operating the shovel with William Nues looking after affairs on the rear end.

Coss & Otto, Wheeling, West Virginia, expect to complete their highway contract near Avella, Pennsylvania, in the near future. A Bucyrus-Erie Gas + Air is being used.

R. D. Thomas & Co. were low bidders on five contracts for the City of Pittsburgh within the last few weeks.

"*It sure has done its stuff,*" says this user:

The operator of this Byers Bear Cat says: "The best recommendation that I can give for your rope is that I have given you three orders for Tru-Lay . . . We have plenty of digging for our Bear Cat, and have now used Tru-Lay for all kinds of shovel work. *It sure has done its stuff.*" This is typical of reports from Tru-Lay Preformed Wire Rope users. In this case the average service of Tru-Lay is 21 days, as against 6 days with ordinary wire rope. Many firms are getting from 50% to 250% *increased* service from Tru-Lay. Few get less than 30%. Let us send you a sample piece of rope — and our "Book of Facts for every Wire Rope User." Address

AMERICAN CABLE COMPANY, *Incorporated*
New York Central Bldg., 230 Park Ave., New York, N. Y.

District Offices: Chicago, Detroit, Philadelphia, Pittsburgh, Tulsa, San Francisco
An Associate Company of the American Chain Company, *Incorporated*
Dominion Wire Rope Company, *Limited*, Montreal
Sole Canadian Licensed Manufacturers

In writing to American Cable Company, Inc., please use post card bound in the center of this number.

VERSATILE

..the result of advanced Engineering

FROM the radiator right through to the drawbar hook, the Allis-Chalmers Monarch is completely MODERN in design.

Its powerful new-type motor runs steadily—sweetly—through the hardest work without overheating. The long surefooted tracks swing the tractor around in its own radius. Easy-working steering clutches and truck-type steering wheel permit the operator to do his work easily, naturally, and safely. He watches the course ahead and the operations behind without discomfort or fatigue. He gets more work done in less time.

Monarch "50" and "75" owners are consistently finishing jobs in less than contract time. Hauling 42" elevating graders through stubborn soil — pulling 10-yard wagons heaped high with heavy clay—easily moving 4 or 5 loaded Maney scrapers — these are easy jobs for the Monarch "75" — the "50" has power in proportion. Write for complete details and prices.

ALLIS-CHALMERS MFG. CO.

Specialists in Power Machinery Since 1846

Monarch Tractors Division SPRINGFIELD, ILL.

Allis-Chalmers

Monarch Tractors

In writing to Allis-Chalmers Manufacturing Co. — Monarch Tractors Division please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

Mike Mannella was low bidder for the construction of water line under Monongahela River.

William (Big Bill) White is operating a Bucyrus-Erie Type "1030" gasoline shovel for Nick Istock at Aliquippa, Pa.

The Vang Construction Company, who are the principal contractors on the new Allegheny County Airport, Mifflin Township, with the aid of several subcontractors, are moving earth and rock in record time with fifteen power shovels.

Construction of the addition to Bettis Field is moving very well. **R. M. Netherland Company** are the contractors. Contractors on both flying fields expect to complete their contracts ahead of time. Eight power shovels, trucks, and 36-inch gauge car equipment, are being used.

Some few days ago, **P. W. Chabot, Vice-President of the John F. Casey Company,** purchased an Eaglerock biplane with a 300 horsepower motor. He will use the ship in pleasure flights. Mr. Chabot has been flying for some time with Jack Morris of the Morris Flying Service here.

James McQuade & Sons Co. have several contracts under way in the Pittsburgh district at this time.

H. W. Shaull & Sons, Mechanicsburg, Pa., are considerably ahead of schedule on their Pennsylvania State Highway contract in Center County. Walter Shaull is in charge of this work. They always do things where Walter is connected! Bucyrus-Erie Gas + Air and steam shovels are used exclusively by the Shaull Co.

Frank Beeker is operating a GA-2 shovel for Keystone Contracting Company near Georgetown, Pennsylvania.

McCrady Brothers Company, Braddock, Pennsylvania, was awarded the contract for the construction of Laketon Road

Dragline of the Memphis Stone & Gravel Co., Atmore, Ala., equipped with Moon generator.

"THE Moon steam turbine generator installed on the 50-B dragline has given us good satisfaction and we have experienced no trouble with it"—writes W. H. McDonald, Gen. Mgr. of the Memphis Stone & Gravel Co.

It is this kind of dependable performance which is responsible for the popularity of Moon lighting plants in the construction field today.

Write for Bulletin No. E-1.

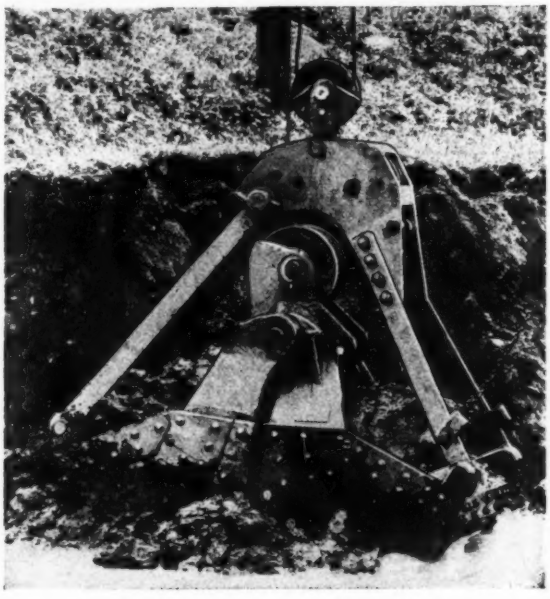
THE MOON MANUFACTURING COMPANY
114-128 No. Jefferson St., Chicago

MOON LIGHTING OUTFITS

Would $25.00 a Day Extra Profit Be of Interest to You?

Here's how one Contracting Company earned it without a bit of extra trouble.

The Job We Are Talking About



They had a contract for widening and deepening French Creek at 50 cents per yard.

The digging was tough — muck, shale rock, blue clay and the like. Their bucket did not seem to obtain much of a load — just skimmed over the top. They were moving 200 yards a day and that isn't very much nowadays.

One of our men happened along, and after watching for a short time, went over to the foreman, who was also one of the company, and told him about the New Erie Multi-Power Bucket.

He didn't believe him, but finally consented to give the bucket a trial. The bucket was delivered the next morning and they dug better than 250 yards the remainder of the day.

Now let's do a little simple arithmetic.

200 yards at 50 cents a yard	$100.00
250 yards at 50 cents a yard	125.00
Profit	$ 25.00

You, no doubt, have some tough digging, too, and can earn some extra profit the same way the other Company did.

Better investigate Erie Buckets. Start now by sending for our catalog.

Erie Steel Construction Co.
Erie Penna.

SHOTS FROM THE FIRING LINE — Continued

at a bid of $215,868.50. The improvement extends from Montier Street, Wilkinsburg, to Frankstown Road, Penn Township. Four bids were received.

E. L. Coveney, Superintendent for the Pennsylvania Department of Highways, sends us the above photograph showing a Bucyrus-Erie Gas + Air loading into Mack trucks on a Chester County road job. On this piece of work there were 7000 cubic yards of excavation, which contained approximately fifty per cent rock and fifty per cent dirt.

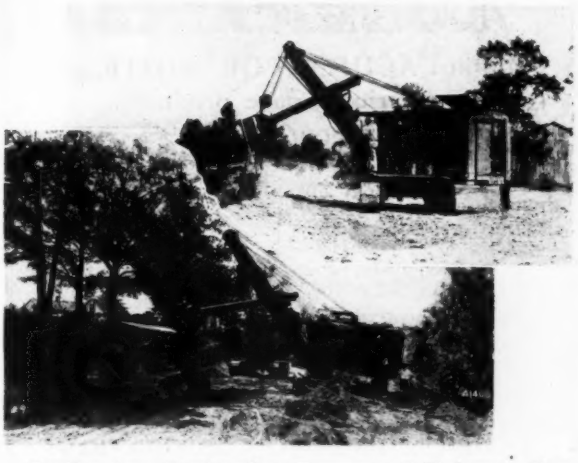
Bids will be opened in the office of the United States Engineers' office Friday, October 11, 1929, for the **construction of the abutment and dam of No. 7, Allegheny River, at Kittanning, Pennsylvania.** Colonel Jarvis J. Bain is in charge of the Pittsburgh District.

James L. Stuart, Secretary of Pennsylvania State Highways, has just announced the resignation, effective October 1, of John L. Herber, as division engineer in charge of the Pittsburgh Division. Mr. Herber had deferred his resignation for several weeks at Secretary Stuart's request in order to get under way the unusually heavy road program. Mr. Herber has been in charge of the local division, embracing Beaver, Allegheny, Westmoreland, Fayette, Washington and Green Counties for over six years.

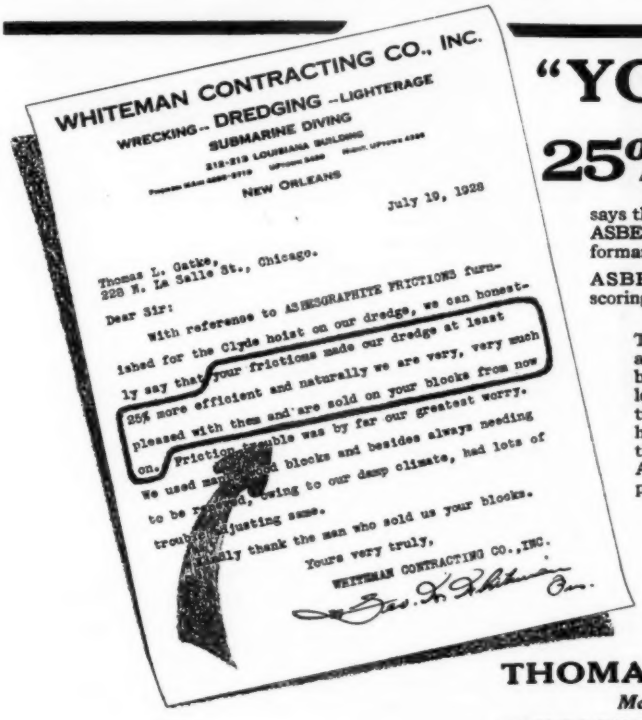
Beginning October first the local division headquarters will be in charge of **Henry E. Kloss,** division engineer at Hollidaysburg. Mr. Herber will be associated with the International Cement Corporation in Philadelphia.

Kentucky Notes

BY D. F. SHANAHAN



Southeastern Construction Company of Eminence, Kentucky, are doing some noteworthy work in Anderson County on the Lawrenceburg-Bloomfield Road where they are handling 230,000 cubic yards of excavation. Note in the above pictures


WHITEMAN CONTRACTING CO., INC.
WRECKING -- DREDGING -- LIGHTERAGE
SUBMARINE DIVING
218-219 LOUISIANA BUILDING
NEW ORLEANS

July 19, 1928

Thomas L. Gatke,
228 N. La Salle St., Chicago.

Dear Sir:

With reference to ASBESGRAPHITE FRICTIONS furnished for the Clyde hoist on our dredge, we can honestly say that your frictions made our dredge at least 25% more efficient and naturally we are very, very much pleased with them and are sold on your blocks from now on. Friction trouble was by far our greatest worry. We used many [illegible] blocks and besides always needing to be renewed, owing to our damp climate, had lots of trouble adjusting same.

Yours very truly,
WHITEMAN CONTRACTING CO., INC.
Chas. L. Whiteman Pres.

"YOUR FRICTIONS MADE OUR DREDGE 25% MORE EFFICIENT,"

says the Whiteman Contracting Co. Is it any wonder that GATKE ASBESGRAPHITE FRICTIONS have revolutionized the performance of shovels, dredges, draglines, hoists, cranes, trucks, etc.?

ASBESGRAPHITE FRICTIONS are self-lubricating, non-scoring, and are not affected by heat, cold or moisture.

They remain in permanent adjustment. There is no grabbing or chatter, even after long service. Smoother control, faster operation, and higher efficiency always follow the installation of GATKE ASBESGRAPHITE products.

All sizes carried in stock for all types of equipment. Send for bulletin.

THOMAS L. GATKE
Manufacturer
228 N. LA SALLE STREET, CHICAGO

ASBESGRAPHITE
ASBESTOS COMPOSITION

In writing to Thomas L. Gatke please use post card bound in the center of this number

GREDAG
REG. U. S. PAT. OFF.
LUBRICANTS

contain ACHESON-GRAPHITE, an electric furnace product having a purity of 99.9%

Pure graphite resists heavy shocks, pressures, heat and cold. Moreover, it improves all metal surfaces and prolongs the life of bearings, gears, chains, wire cables, etc.

This is one of the reasons why the excavating trade prefers and demands GREDAG.

Send for Catalog, Form 869.

ACHESON GRAPHITE CORPORATION
Unit of Union Carbide UCC *and Carbon Corporation*
NIAGARA FALLS, NEW YORK

Two Days' Work In One Day's Time

WHEN days grow shorter—when dark hours crowd out productive operation—Speed up your Job with a night shift.

Carbic Flood Lights are powerful, portable units that supply clear white perfectly diffused light. They are rugged pieces of equipment built to serve you night after night.

Carbic Light requires no costly installation. Any inexperienced workman can charge it in a few minutes—and it is ready for hours of continuous service.

Carbic Light costs only a few cents an hour.

Extend Your Working Day With
CARBIC LIGHT

OXWELD ACETYLENE COMPANY
Unit of Union Carbide and Carbon Corporation
NEW YORK CITY Carbide and Carbon Building — UCC — CHICAGO Carbide and Carbon Building
SAN FRANCISCO Adam Grant Building

Technical Publicity Department, Oxweld Acetylene Company
30 East 42nd Street, New York, N. Y.
Without obligation, I would like to have additional information on Carbic Lights.
Name
Street Address
City State

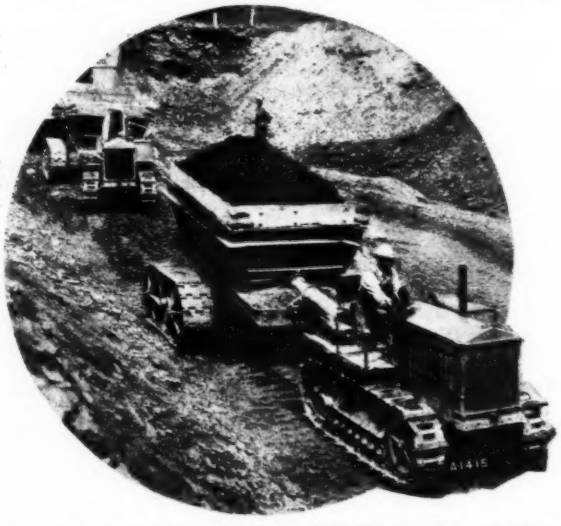
CARBIC

SHOTS FROM THE FIRING LINE — Continued

the beautiful grade left by the Bucyrus-Erie Gas + Air operated by Charlie Gates. The lower photograph shows another of the Southeastern Construction Company's Gas + Airs with Jas. E. Cranwell at the levers. This machine holds a very enviable record on this job, having completed a 3900-cubic-yard cut in thirty-six hours, all the material being hauled. On another occasion it cut into a 6100-cubic-yard cut at seven o'clock Saturday morning and the following Saturday morning had it dressed up, ditched, sloped and was on the way to another cut. In this case also all the material was hauled and not cast. The Southeastern Construction Company own three Bucyrus-Erie Gas + Airs and two B-2 steamers.

Ohio Notes

H. W. Baldwin of Willoughby, Ohio, has been excavating 60,000 cubic yards on the Franklin-Greenville Road between Sandy Lake and Clarks Mills. He is using a Lorain 60 with a fleet of Cletrac 30's hauling 6-yard Euclid crawler wagons. On his best day the tractors made 120 loads apiece on an



average haul of about 450 feet. The fill for the cut shown in the photograph was in a very swampy place. He tried to do some hauling with trucks one day, but found that he could only get them through with a single dipper full, and that they could do no more than equal the number of trips made by the tractors.

Detroit and Vicinity

BY J. S. WALDINGER

C. A. Handeyside Construction Company of this city was recently awarded the contract for the new 1,300,000-gallon reservoir at Wayne, Michigan.

Our friend, Billy Shook, is operating a Gas + Air machine for Jutton-Kelley Company who have been using this machine as a shovel and clamshell. They are now using it to drive sheet-piling, and using the air from the compressor of this machine for operating the hammer.

The J. A. Utley Company is making fine progress in the development of the new Fischer estate at Romeo, Michigan. Four Bucyrus-Erie Type-B steam shovels and one Gas + Air shovel are being used for this work.

G. L. Laboiteaus of Toledo has two Bucyrus-Erie Type B-2 shovels working on the new Hocking Valley Railroad siding and dock development project at Toledo.

Furnari Bros., well-known excavating contractors of this city, have recently purchased a new Type B-2 Bucyrus-Erie shovel and have kept it busy since its delivery.

How Can You Compete?

Western Crawler Dump Wagons, Direct Hitch, Building Roads in Minnesota

"We consider that our four direct-hitch Western Crawler wagons do the work of 30 1½-yard wagons," said Herbert Griffis of Griffis Brothers Construction Company, who are building a highway in Minnesota.

If you are not using Western Crawler wagons, how are you going to compete with such outfits, that can work night and day, can pull big loads where other type of wagons could not move, and operate in trains of two where hauling conditions are good?

Western Crawler dump wagons are made in three sizes, with direct hitch or front trucks. Send for our Bulletin 29-AK that gives full information.

Western Wheeled Scraper Company

Aurora, Illinois, U. S. A.

WESTERN

DUMP CARS AND GRADING EQUIPMENT

In writing to Western Wheeled Scraper Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

Dolomite Materials Company are keeping right busy at their Detroit material distributing yards. The above view shows two of their Bucyrus-Erie Gas + Air clamshell outfits, also a Bucyrus-Erie type 1030, rented from the Roura Iron Works, handling crushed stone at their west end yard from dock to Blaw-Knox bins. S. F. Vanderbrock is superintendent in charge of their yards, and mentioned to us as we chatted with him that each of their Gas + Air machines were handling the various sizes of stone at an average rate of slightly over 150 tons per hour. These Bucyrus-Erie Gas + Air clamshell units used by Dolomite Materials are equipped with fifty-foot booms and 1¼-cubic-yard Williams clamshell buckets. Their crushed rock comes by boat from their own quarry at Sturgeon Bay, Wisconsin.

The George R. Cooke Company is progressing rapidly on its Fox Creek sewer contract, using three Bucyrus-Erie clamshell machines: two Type B-2s and one Type "1030" on this job, together with a rented crane.

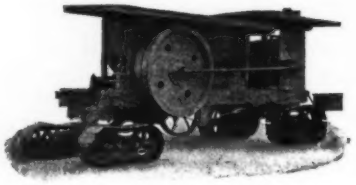
Henry R. Delorme dropped in to see us, having just returned from Durham, North Carolina, where he has been operating a Gas + Air shovel for Nello Teer. Mr. Delorme is an old-timer around Detroit, previously having operated Type-B Erie machines for Morris Laramie of this city for several years.

Central States Notes

The Excavating Service Company of Aurora, Illinois, is doing some nice work on highway construction up in Fond du Lac County, Wisconsin. The above view shows their Bucyrus-Erie Type B shovel in a 25-foot cut on County Trunk Highway DD. In June this machine turned out a yardage of 18,500 cubic yards, which is a record to be proud of on the type of work they have been handling.

There were 3800 cubic yards of earth, loose rock, boulders and solid rock in the excavation for the above Davenport, Iowa, basement handled by **Corey & Collinson of Moline, Illinois.** The ¾-yard gasoline shovel shown averaged 500 yards

"CLIPPER" Drills Keep Faith



You can depend on "Clipper" Blast Hole Drills—today, tomorrow, and for years to come. Simple, rugged, fast and reliable, your "Clippers" will always be ready to give you maximum footage and minimum costs. They have earned their reputation for unmatched quality.

Through years of manufacture, Loomis' "Clippers" have been developed, improved and perfected. They are built for hard drilling and for hard usage. In all types of field service, in all kinds of quarries and mines, they have satisfied their owners. They have demonstrated their efficiency on installations similar to yours and we will be glad to refer you to owners who have met your problems with "Clippers."

May we send you catalogs and refer you to these men who are the best judges of how "Clippers" keep faith?

THE LOOMIS MACHINE CO.
(*Established 1842*) K Street, Tiffin, Ohio

Page Buckets

DISTINCTIVE AND EXCLUSIVE

Standard of the World

PAGE ENGINEERING CO. 844 RUSH ST. CHICAGO — ILL.

DRAG SHOVELS — DRAG LINES — BUCKETS — SLACK LINES

Both Travel as the Crow flies

FOR weeks prior to the opening of the National Aeronautical Exposition held recently at Cleveland, 12 "Iron Mules" were busy enlarging Cleveland's extensive Airport.

As the crow flies they went, direct from loader to fill — hustling grader to bigger daily yardages — cutting dirt-moving costs, increasing profits.

The "Iron Mule" is the modern dirt-mover — in speed, power, traction, and adaptability — it not only saves time by taking the short route from loader to fill — road or no road — but it is instantly spotted for loading, and dumps over fills without having to back up, because driver is always facing the load.

"Iron Mules" are 2 and 4-yard dump bodies mounted on the McCormick-Deering tractor Model 20. 2 yard is gravity dump with heavy duty wheels — 4 yard has crawler tracks and power hoist.

Time's money — profit. Mail the coupon. Get the illustrated folder and name of nearby contractor. See them in action before you invest a nickel.

From 3 to 60 Units

Scores of contractors have fleets varying in size from 3 to 60 units. Any one of these "Iron Mule" owners will tell you that there is no equipment to equal these tractor dumps for short haul dirt moving. They tackle jobs impossible to trucks and teams — give more yardage at less cost.

And you'll find Hughes-Keenan Dump Bodies for all makes of light trucks the stoutest units you ever set eyes on.

See Hughes-Keenan "Iron Mules" and Dump Bodies at 1930 Road Show, Atlantic City.

Send Coupon for Folder

Hughes-Keenan Company, Mansfield, Ohio.
Gentlemen:
Please send me without obligation your free illustrated "Iron Mule" folder and dump body literature.

Name .....
Address .....
City..... State.....

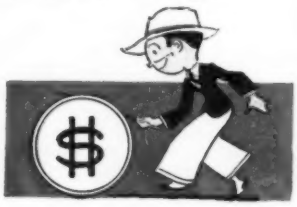
THE HUGHES-KEENAN COMPANY
MANSFIELD - - - - OHIO

IRON MULE
TRADE MARK REG. U.S. PAT. OFF.

TRACTOR DUMP
MOUNTED ON McCORMICK-DEERING

In writing to Hughes-Keenan Company please use coupon or post card bound in the center of this number.

Make your wire rope dollar go farther!



Maximum cubic yards per wire rope dollar is what you want when you buy wire rope. The rope costs you so much a foot but you judge results on the basis of cost per unit excavated. To make your wire rope dollar go farther you will find it pays to buy the rope that gives the longest service.

Maximum service is given by our wire rope because it is selected carefully for the exact needs of your machine. Send us your orders for wire ropes. They cost no more — you'll get prompt service — and because you'll get just the right rope it will give you longer service and more yardage.

BUCYRUS-ERIE COMPANY

BUCYRUS ERIE

Specialty Department
South Milwaukee, Wisconsin

Meeting Place of Capital and Labor

The KOENIG LABOR AGENCIES
Established 1875

ST. LOUIS
612 Walnut Street
Main 2766 and 2767

KANSAS CITY
501 Delaware Street
Main 0796

Help of All Kinds Furnished Free

NOVO
FLUD-LITE LIGHTING UNITS

For lighting cranes—shovels—construction jobs—cheaply and dependably—compact—light in weight—with standard generator and Novo Rollr Engine. 1¼ to 25 K. W.

Please send me the special folder

Name_____

Address_____

City_____ State_____

Mail to NOVO ENGINE COMPANY
222 Porter St., Lansing, Mich.
Clarence E. Bement, *Vice-Pres. & Gen. Mgr.*

SHOTS FROM THE FIRING LINE — Continued

per ten hours on this job, and Mr. Collinson tells us that in good digging he can easily load into trucks eight to nine hundred yards per ten-hour day.

F. E. Cowden of Riverton, Iowa, is looking for ditch or levee job on which to use dragline equipment. Mr. Cowden is experienced in this type of work.

The Northwestern Engineering Company, builders of bridges, highways and structures, have recently moved their office from Kadoka, South Dakota, where one of their yards is located, to Rapid City, South Dakota.

Southern Notes

Contracts approximating $3,000,000 have been awarded to the **Stardard Dredging Co. of New York** for levees and flood prevention work on the lower Mississippi.

Millsap & Parker have about completed their viaduct job over the main lines of the Southern and Louisville & Nashville Railroads in Birmingham's grade separation program. The concrete retaining wall at the lower end of the project is under way, and further awards of work will follow soon.

Mike Harvey, Oakland, Mississippi, was recently awarded a highway contract near Canton, Mississippi.

Work has been started on the Helena, Arkansas, improvement district levee. The H. B. Banks Construction Co., New Orleans, have the contract for this work which will require 1,170,000 cubic yards of earth. Their bid was 26c per yard.

The contract for the Upper Yazoo Levee District, requiring 2,175,000 yards of material, was awarded to Canal Construction Co. of Memphis.

Highway contracts totaling $2,087,886 were awarded by the Missouri State Highway Commission. Contracts amounting to approximately $450,000 were also awarded at this letting.

St. Louis Notes

BY A. J. KOENIG

The above view shows A. Guthrie & Company's Bucyrus-Erie E-2 dragline, using a 1¼-yard bucket and a 45-foot boom, excavating on the Forest Park Section of the Des Peres sewer in clay and limestone.

BIG THINGS
are happening in the
DIRT-MOVING BUSINESS

Bucyrus-Erie D2 Shovel . . powered with an Atlas Imperial Diesel . . in use in the State of Washington.

New standards are being set by excavators powered with Atlas Imperial Diesels. . .

Averaging from 500 to 700 cu. yards per 10-hour day..in tough going..with total daily fuel costs of $1.65 . . is the report of a highway contractor in Pennsylvania . . on several excavators powered with Atlas Imperial Diesels...

The cheap, low-grade fuel oil that you burn in an Atlas Imperial costs only ⅓ to ¼ as much as gasoline . . and you use only ½ to ⅓ as much. . .

Besides!..you get from 10% to 15% greater yardage. . . Because the Atlas Imperial never falters in a pinch. Under heavy load, and consequent lower speed, where a gas machine normally stalls..the Atlas Imperial lugs...

Its lugging power (torque) uniquely increases, as the engine is thus pulled down in speed . . because, with its common rail fuel system, proper atomization is maintained in the Atlas Imperial over the entire range of speeds...

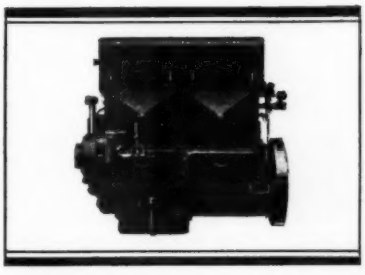
From stone cold..to full load..the Atlas Imperial starts in 10 seconds . . ignition is by the heat of compression . . no spark plugs . . no troublesome ignition system. . .

Six years of actual operating experience have now demonstrated that the excavator powered with an Atlas Imperial Diesel is by far the cheapest . . and fastest . . dirt-moving method ever conceived. . .

Investigate the Atlas Imperial Diesel . . before you buy another excavator. For more information . . mail the coupon.

USED IN

Bucyrus-Erie Excavators : P & H (Harnishfeger) Excavators : Link-Belt Excavators : Thew Excavators : Plymouth Locomotives : Lidgerwood Logging Equipment.



Atlas Imperial manufactures a full line of Diesels, ranging from 20 H P to 500 H P . . for all marine and industrial uses.

ATLAS IMPERIAL
FULL DIESELS

BRANCH OFFICES: *New York · Chicago · New Orleans · Portland, Oregon · Houston, Texas · San Diego, Los Angeles, Terminal Island, California.*
DISTRIBUTORS: *Ferrier & Lucas, Vancouver, B. C. · Atlas Engine Co., Seattle · Fleck & Stelfox, Baltimore · L. R. Beatty, Philadelphia · T. Ralph Foley, Gloucester, Mass. · J. L. Latture Equipment Co., Portland, Ore. · Et. Davio, Papeete, Tahiti · A. B. Donald, Ltd., Auckland, N. Z. · W. Holmes, Sydney, N. S. W. · Honolulu Iron Works Co., Honolulu, T. H. · Lidgerwood Pacific Co., Tacoma, Wash.*

Atlas Imperial Diesel Engine Co., 2867 Glascock St., Oakland, California: Mail information on Atlas Imperial Full Diesels.

*Use*_____ *Name*_____ *Company*_____ *Address*_____

In writing to Atlas Imperial Diesel Engine Co. please use post card bound in the center of this number.

Here the Track Machine is taking the place of a jack crew, raising the track on a railroad construction job.

Raising Track Without Jacks

This modern labor-saving development with its various attachments is suitable for any track raising, shifting, ballasting or steel re-laying job. Wherever used it has proven to be a great saver in time and labor. Its performance will surprise you.

Write for Bulletin GR-8.

NORDBERG MFG. CO., Milwaukee, Wis.

THE NORDBERG PATENTED TRACK MACHINE

SHOTS FROM THE FIRING LINE — Continued

The contract for building Section "H" of the River des Peres project was awarded to Blackburn Construction Co. of St. Louis, the second lowest bidder. The successful bid was $1,957,175. This project consists of three miles of sewer to enclose the River des Peres from a point near the Mississippi River northwest to Gravois Avenue, being largely within the City of St. Louis, and running through Forest Park.

Mulvill Brothers, of Alton, Illinois, have completed their work for the Illinois Terminal Railroad at Ofallon, Illinois, and have loaded their outfit for some work on the East St. Louis Terminal, where they have a contract for the relinement of the line for the Illinois Terminal System.

Cameron-Joyce, Smith-Elder Co. landed two nice contracts in Jackson County, Missouri, for the grading and paving of Blue Ridge Road and Blue Springs Road. The Blue Ridge Road includes 12.22 miles and bid went at $429,145; the Blue Springs bid was $266,536 and involves nine and one-sixth miles of road.

Kansas City Notes

BY HAROLD R. DOWNS

The H. H. Carrothers Construction Company of Kansas City has been awarded ten and one-half miles of twenty-eight-foot grading on the Fontana Paola Road by the Kansas State Highway Commission at $52,474.00. They are using a GA-2 Bucyrus-Erie on the job.

J. A. Kreis and Sons of Knoxville, Tennessee, who were the successful bidders on four sections of the Missouri Pacific work eighty miles west of Council Grove, Kansas, are moving their outfit in on the job and will be ready to start operating in about three weeks. He will use a standard gauge outfit, including 5-yard Western cars. J. A. Kreis and Sons

500 Tons of Boiler Material Carried in Stock to Assure Prompt Service

To assure prompt service we carry in stock over 500 tons of boiler material ready to be built into boilers by skilled workmen and speedy machinery to quickly meet your special boiler requirements, whatever they may be.

A resident inspector on the job at the Johnston plant is authorized to make all inspections. A library of foreign boiler rules is maintained so that boilers may be built to meet the requirements of practically any foreign government.

For efficient boilers and prompt service specify Johnston Boilers.

JOHNSTON BROS., Inc., FERRYSBURG, MICH.

SHOTS FROM THE FIRING LINE — Continued

have brought the following subcontractors from Knoxville, who are now moving their outfits on the job: J. P. Bogart, Crippen Construction Company, Costello Brothers & Mays, A. J. Wardrep & Sons.

J. P. Bogart will use a narrow gauge outfit, including 5-yard Western cars and Plymouth locomotives. **The Crippen Construction Company** uses a narrow gauge outfit, and is doing some of his excavating with a Type B Bucyrus-Erie shovel. **Costello Brothers & Mays** have placed two outfits on their section, one being a narrow gauge outfit with Western 5-yard cars and a 50-B Bucyrus shovel, the other outfit being a steam outfit. They have a complete line of Western wagons, fresnos, wheelers and elevating graders for this work. **A. J. Wardrep & Sons** have the subcontract for the concrete work on the entire job. They will use a Type B Erie shovel for footing excavation.

The C. J. List Construction Company of Kansas City, Missouri, has been awarded an eighty-five-mile extension of the Atchison, Topeka & Santa Fe Railroad between Alpine and Pesido, Texas. The grading equipment has been moved here on the job and work is all ready in full swing along the entire line. This contract calls for the grading, track laying, ballasting and completion of the tracks, together with the building of depots and stock pens and the fencing of the right-of-way. John Hallet is General Superintendent for the List Construction Company and is assisted by Charles Sample.

Charley Marshall of Breckenridge, Missouri, who has one section of the new Rock Island short line from Trenton to Kansas City, Missouri, has an outfit on his job which will really move the dirt. He has just placed thirty new, four-yard, Western, narrow gauge dump cars on his work and is keeping them busy with his 50-B Bucyrus-Erie steam shovel. Mr. Marshall has just purchased two new ten by eight Ingersoll-Rand Compressors and a number of tools for his rock work.

Washington Notes

BY G. WITTE

Goetz & Brennan of Seattle have been awarded contract for clearing, grading, draining and surfacing about 4.9 miles of State Road No. 9 from Hoodsport to Junction of State Road No. 14 in Mason County. The work involves about 18.7 acres of clearing, 72,700 cubic yards of excavation, 13,140 cubic yards of surfacing, 180.0 cubic yards of concrete and 1,083 cubic yards of sack rip rap with 1,400 lineal feet of pipe culverts and other items.

Frank J. McHugh of Seattle was awarded the contract on State Road No. 1 in Whatcom County. On the 1.14 miles involved in this contract there are 52,275 cubic yards of excavation, and 900 lineal feet of pipe culverts.

Hendricks and Company of Chehalis, Washington, received contract on 0.7 miles of State Road No. 12 from McCormick to Walville in Lewis County. This includes 3.2 acres of clearing, 25,410 cubic yards of excavation, 1,800 cubic yards of surfacing, 273 lineal feet of pipe culverts, and 256-foot concrete girder bridge across the Northern Pacific Railway and Rock Creek.

The "Champion" Guaranteed to outdig and outlast any other bucket
G. H. Williams Co., 603 Haybarger Lane, Erie, Pa.
Branch Offices: New York, Pittsburgh, Chicago
WILLIAMS
FAST-DIGGING BUCKETS

"Every day it pays its way"

Quickly convertible without drum lagging from Backfiller to Crane, Clamshell or Dragline, the Buckeye Utility Backfiller-Crane can be kept continuously in profitable operation. It is efficient for handling miscellaneous materials, feeding central mixing plants, pulling sheeting, yard service—in fact, the variety of its profitable applications is limited only by the ingenuity of its operators in adapting their methods to this equipment. Timken equipped and multiple-disc clutch control.

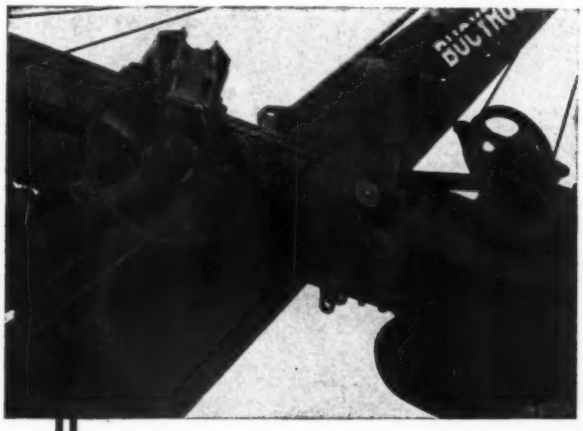
The Buckeye Traction Ditcher Co.

FINDLAY, OHIO

There's a Buckeye Sales and Service Office Near You

for over thirty years Buckeye

Speed up your shovel with one of our new power dipper trips



WHY waste your operator's time and energy jerking the old-style trip rope? You can now equip your shovels with a dependable power dipper trip that dumps the dipper surely and accurately. The Improved Bucyrus-Erie dipper trip is always positive in action and gives continuous trouble-free operation.

BUCYRUS-ERIE COMPANY can supply for immediate shipment packings of all kinds, brake lining of all types, wire rope, electric light plants, hoisting chain, rail clamps, power transmission cables and railway crane equipment.

A Bucyrus-Erie power dipper trip will speed up your shovel cycle and increase your production. It will pay for itself in a short time. After that it will help pay your dividends.

We can supply these improved power trips for your steam, Diesel, or electric shovel. May we furnish complete information and quote you prices?

BUCYRUS-ERIE COMPANY
SPECIALTY DEPARTMENT
South Milwaukee, Wisconsin

BUCYRUS ERIE

SHOTS FROM THE FIRING LINE — Continued

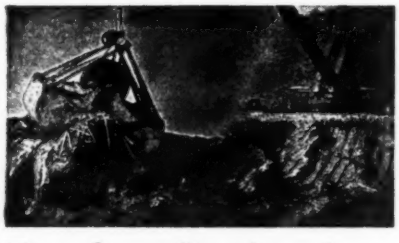
Contract was awarded to Hammer, Keto Company of Chehalis, Washington, for constructing a 162-foot steel span bridge with four 27.5-foot concrete girder approach spans on State Highway No. 12 in Pacific County. 9,000 cubic yards of excavation, 890 cubic yards of surfacing, and 39 lineal feet of pipe culverts are included in the contract.

Carl Signer of Portland, Oregon, obtained contract for resurfacing forty-six miles of State Road No. 8 from Washougal to Little White Salmon River in Clark and Skamania Counties, requiring about 10,600 cubic yards of Wind Mountain gravel.

Oregon Notes

BY M. D. TROYER

Dunn and Baker of Klamath Falls, Oregon, are using the above Bucyrus-Erie 1030 ⅞-yard shovel on street work for the city of Klamath Falls. The shovel is at work at present excavating 42,000 yards for installation of new pavement. Dunn and Baker have the contract for both the exca-



For fast digging in hard-packed soil

WITH power and strength to penetrate the hardest soil and to take capacity loads every time, Hayward Buckets make quick work of the toughest digging jobs.

Talk over your bucket problems with a Hayward Engineer. Having four different types of digging and re-handling buckets to draw from makes his recommendations unprejudiced.

THE HAYWARD COMPANY
52-54 Church St. New York, N. Y.

Hayward Buckets

SHOTS FROM THE FIRING LINE — Continued

vation and laying of macadam pavement on this job, which involves ninety blocks of paving. The job is known as Improvement Unit 83, and the contract price for the job was $270,000.

California Notes

Joe Catucci of Oakland, California, has a ¾-yard Type 1030 Bucyrus-Erie gas shovel which recently loaded 195 five and eight-yard trucks in 8 hours, equivalent to 927 yards bank measure. The material was a fairly high per cent of rock and the cut was 12 feet high. The operator was Frank Taylor and the oiler, Lou Hennegan.

H. W. Rohl Company of Los Angeles is constructing the Chenery Reservoir for the Public Works Engineering Corporation, involving 750,000 cubic yards of earth to be placed in fourteen weeks. At present two 1½-yard machines loading 10-yard trucks are turning out over 6000 yards per day of two nine-hour shifts. Additional equipment is being moved to the job which should bring the daily run to more than 12,000 yards. Ben F. Wells is superintendent in charge of the work.

The United States and the Imperial Irrigation District and the Coachella Valley County Water District have contracted to spend $100,000 for investigations, surveys and cost estimates for the proposed all-American canal on the Boulder Dam project.

The Great Northern Railroad contemplates construction of an extension to Jordan, Montana, to cost approximately $3,000,000.

Pearson and Dickerson, of Riverside, California, completed last season the Grand View-Desert View section on the south rim of the Grand Canyon of Arizona. This portion of the work included 150,000 cubic yards of excavation, 90% of which was rock. For this work they used their Bucyrus-Erie Gas + Air, loading into trucks as shown in the above illustration. Average daily production was about 400 cubic yards in 8 hours with a record for the job of 960 cubic yards. The Bureau of Public Roads has been late this year in starting additional sections of this project, but additional work will be started shortly at Grand Canyon, in which Pearson and Dickerson, with their previous experience on the project, will, no doubt, have a part.

Fisher, Ross, MacDonald & Kahn, Inc., have their 4-yard 120-B Bucyrus-Erie electric shovel in operation at the San Gabriel Dam.

POSITIONS WANTED

Space under this heading is available at $4.30 per inch or fraction thereof.

Dragline or Shovel Operator

10 years' experience on Bucyrus, Thew, Erie, Monighan, Link-Belt, Northwest and P. & H. on highway and railroad work with Diesel, Electric and Gasoline machines. Can do own repair work and furnish good reference. Prefers a Bucyrus or Erie Diesel machine anywhere in the United States. At present located in Nebraska. Address Box 1062, % The Excavating Engineer, South Milwaukee, Wis.

Operator

20 years' experience on Erie, P. & H. and Link Belt machines on clamshell, dragline and shovel work. Will take any kind of a position on any make of machine anywhere in the U. S. A. Is a good repair man and can furnish good reference. At present located in Florida. Address Box 1059, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

Steam Shovel Operator

3 years' experience on Erie machine on road grading and general work. Would like a position anywhere in the U. S. A. on Erie machine. Can do own repair work and furnish good reference. At present located in Virginia. Address Box 1060, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

Gas or Steam Shovel Operator

Experience on cutting slopes, grading and highway construction. Not afraid of work, would like a position on any type of small machine anywhere in the U. S. A. Can do his own repair work and furnish good reference. Address Box 1058, % The Excavating Engineer, South Milwaukee, Wis. 1

Diesel Operator

5 years' experience on Bucyrus and P&H Diesel machines on drainage, road and grading work. Can do his own repair work and furnish good reference. Will work anywhere in the U. S. A. Prefers position on a Bucyrus 50-B machine. Address Box 1057, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

Fireman

7 years' experience on Erie Type B steam shovel. Would like a position on same type machine in West Virginia. Can do own repair work and furnish good reference. Address Box 1056, % The Excavating Engineer, South Milwaukee, Wis. 1

Diesel Operator

3 years' experience on Bucyrus 30-B on ditching and road grading work. Can make own repair, furnish good reference and will work anywhere in the U. S. A. Prefer a 30-B or 50-B Bucyrus machine. Address Box 1055, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

Master Mechanic or Operator

Desires foreign work. Experienced in repairing and operating shovels, cranes and floating equipment. Also in handling labor. Age 30. Speaks Spanish. H. Marquardt, 3552 94th Street, Jackson Heights, New York.

Dragline Operator

With eleven years' experience on Bucyrus machine on levee and irrigation work. Would like a position anywhere in the United States. Can do his own repair work. Can furnish good reference and at present located in Louisiana. Address Box 1061, % The Excavating Engineer, South Milwaukee, Wis. 1

Shovel Engineer

12 years' experience on Bucyrus and Marion railroad-type machines on highway, dam, rock, earth and railroad work. Would like a position on Gas + Air, electric or steam machines anywhere in the U. S. A. Can do his own repair work and furnish good reference. At present located in South Carolina. Address Box 1054, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

Superintendent or Operator

10 years' experience on Bucyrus-Erie 20-B, 30-B, 50-B and Gas-Diesel on all kinds of work. Would like a position on a Diesel machine anywhere in the world. Can do his own repair work and furnish good reference. At present located in California. Address Box 1053, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

Steam Shovel Operator

20 years' experience on Bucyrus, Erie and Marion machines on construction and excavation work. Can do his own repair work and furnish good reference. Address Box 1052, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

Dragline and Shovel Operator

15 years' experience on Bucyrus Class-14, 24 and 175 dragline. Also operated Bucyrus 30-B, 50-B and 225-B shovels. Have worked on building levees, drainage and irrigation work, also quarry stripping and loading coal. Address Box 1050, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

Shovel Operator

Married, 42 years old, 12 years' experience on Erie, Marion, Bucyrus and Thew machines on all types of work. Can make own repairs, furnish good reference and located in Ohio. Will work anywhere in the U. S. A. Address Box 1051, % The Excavating Engineer, South Milwaukee, Wisconsin. 1

BOOK REVIEWS

"New Applications and Set-ups" is a 28-page booklet, arranged by the Barber-Greene Company, Aurora, Illinois, covering the use of belt conveyors in construction jobs. Among the uses described and illustrated is the handling of both the dry aggregates and the wet concrete to the forms in the construction of the new Marshall Field Merchandise Mart in Chicago. This set-up in such a large construction job proved so advantageous that other applications of belt conveyors, hitherto believed not feasible, will be and are now becoming commonplace. "New Applications and Set-ups" will be sent to you free of charge. In writing Barber-Greene Company please mention our magazine.

The Butler Bin Company of Waukesha, Wisconsin, has just issued a new rotogravure bulletin showing the uses of Butler bins in general contracting, road construction, central mixing plants, material yards, coal bins, etc. The picture story told by this bulletin will be of value to anyone interested in this type of equipment. In writing the Butler Bin Company for a copy of this bulletin, please mention **The Excavating Engineer.**

George Haiss Manufacturing Company, Incorporated, 144th Street and Park Avenue, New York, New York, have recently released Bulletin No. 629, giving a complete description of the new Haiss Excavator which has many new and attractive features, among which are: the digging without plowing, loading continuously, its ability to make a cut eight feet wide in a single pass, and digging from a skimming cut to one that is four feet deep. A complete catalogue will be sent you by writing the George Haiss Manufacturing Company and mentioning **The Excavating Engineer.**

The Moon Manufacturing Company of 128 North Jefferson Street, Chicago, Illinois, have just issued a new bulletin describing their Moon Lighting outfits. This mailing piece is well illustrated, and describes the line of Moon Turbo generators for furnishing light from steam power available, gas-electric lighting plants, and belt-type generators taking their power from line shafts or direct from engines. Copies of this bulletin may be had by writing to the above manufacturer.

The Cleveland Tractor Company, Cleveland, Ohio, has just issued an interesting broadside showing the complete Cletrac line, and illustrated with many views showing the uses of this equipment.

FOR SALE

Space under this heading is available at the following rates, payable in advance of publication:

1 to 3 inches.....$4.30 an inch
3 to 7 inches..... 4.10 an inch
7 to 14 inches..... 4.00 an inch

An inch is measured vertically on one column — three columns to a page. Any space may be used measured by the even inch in height and by one, two or three columns in width.

The price per inch is based on total space used — multiply ad space by number of continuous insertions.

MODEL 105 NORTHWEST GASOLINE SHOVEL with 1-cubic-yard dipper. Southern location. Machine can be seen in operation. Attractive proposition to responsible parties. Address Box 1225, % The Excavating Engineer, South Milwaukee, Wisconsin.

30-TON OMSTEEL TRAILER, 4-wheel dual rear. In first-class condition. About 1½ years old. Outfit not large enough to meet present requirements. Located vicinity Peoria, Illinois. Priced to sell. Address Box 600, % The Excavating Engineer, South Milwaukee, Wisconsin.

GAS + AIR HIGH-LIFT ERIE SHOVEL, new caterpillar-type mounting. Completely rebuilt. Ready for immediate shipment. Address Box 304, % The Excavating Engineer, South Milwaukee, Wisconsin.

DREDGES
HYDRAULIC, DIPPER AND CLAMSHELL
Pumps, Cutters and Hoists, Sand and Gravel Pumping Plants.
JEAN M. ALLEN & CO.
Contracting and Consulting Engineers
332 S. Michigan Ave., CHICAGO

BUCYRUS 30-B STEAM DRAGLINE, late model, good condition, 45-foot boom. Located near New York City. Price reasonable. Address Box 309, % The Excavating Engineer, South Milwaukee, Wisconsin.

MODEL 206 P. & H. COMBINATION SHOVEL, DRAGLINE AND PILE DRIVER equipped with 18-foot shovel boom, 16-foot dipper handle, ¾-yard dipper; 38-foot dragline boom; 22-foot pile driver leads and drop hammer. Machine in good working condition. Has seen little service. Address Box 1002, % The Excavating Engineer, South Milwaukee, Wis.

1½-YARD HEAVY-DUTY OSGOOD SHOVEL, No. 1591. Boom 26 feet, dipper handle 22 feet and 1½-yard dipper; also 50-foot boom dragline equipment. Price $8000.00. Machine in good condition and working every day at Flint, Michigan. Address Box 1003, % The Excavating Engineer, South Milwaukee, Wisconsin.

20-B BUCYRUS STEAM SHOVEL; shop number about 3715; equipped with 18-foot boom, 12-foot 6-inch dipper handle, ¾-yard dipper, and caterpillar mounted; boiler refued last summer. Good condition. Priced to sell. Located southern Wisconsin. Address Box 607, % The Excavating Engineer, South Milwaukee, Wis.

MODEL 16-B BAY CITY SKIMMER SCOOP, ¾-yard bucket, ¾ revolving, caterpillar mounted, purchased 6/17/28, in good condition. Price $4000.00. Address Box 1013, % The Excavating Engineer, South Milwaukee, Wisconsin.

TYPE "A" SHOVEL, caterpillar mounted, also 26-foot clamshell boom, no bucket, good condition—price $3500.00—good buy. Address Box 1014, % The Excavating Engineer, South Milwaukee, Wisconsin.

P.&H. 206 MAGNET or ¾-YARD CLAMSHELL CRANE with 40-foot boom. Completely overhauled this year. Can be inspected in operation in Milwaukee. Address Box 1015, % The Excavating Engineer, South Milwaukee, Wisconsin.

EQUIPMENT
For Sale at Half Price
TWO TYLER HUMMER VIBRATOR SCREENS TYPE V-16, with single-deck frame complete.
ONE TYLER HUMMER VIBRATOR 17, with double-deck frame.
ONE 2 K. VA. ALTERNATING CURRENT ROTARY GENERAL ELECTRIC CONVERTER for operating the above equipment.
Central Indiana Coal Company
1016 Merchants Bank Bldg.
Indianapolis, Indiana

MARION STEAM SHOVEL — Model 92, Railroad Type, Serial No. 3775, equipped with 1⅝-inch Chain, 8-Yard Dipper. This shovel is in A-1 condition, having new dipper sticks and roof completely overhauled in 1928. Any reasonable offer will be entertained, and, if offer accepted, would include in sale approximately $500 in essential repair parts now on hand. Subject to prior sale and inspection. Location near Kansas City. Address Box 105, % The Excavating Engineer, South Milwaukee, Wisconsin.

BUCYRUS 20-B STEAM SHOVEL, first-class working order. Located Central Illinois. Also Barber-Greene Belt Conveyor, 87 feet long with 24-inch belt, fully equipped with motor, and only slightly used. Above made obsolete by addition of new equipment. Priced to sell at once. Address Box 619, % The Excavating Engineer, South Milwaukee, Wisconsin.

OSGOOD STEAM SHOVEL, shop No. 3102, mounted on caterpillars. $3500.00, priced for quick sale. Located near Rochester, New York. Address Box 713, % The Excavating Engineer, South Milwaukee, Wis.

STRIPPING PROPERTIES
Prospected, Appraised, Examined, Development Planned, Reports
RANDOLPH-PERKINS COMPANY
George B. Massey
38 So. Dearborn St. Chicago, Ill.

MARION 37 STEAM SHOVEL, caterpillar mounted, 28-foot 6-inch boom, 19-foot handle, 1¾-yard manganese front dipper, located near Pittsburgh, Kansas. Machine used very little and in exceedingly good shape. Priced to sell.

MARION 26 STEAM SHOVEL, shop number about 2940. Equipped with 32-foot boom, 21-foot handle, mounted on 5-foot traction wheels. Can be inspected at Pittsburgh, Pennsylvania. Machine in excellent condition, ready for immediate delivery. Address Box 600, % The Excavating Engineer, South Milwaukee, Wisconsin.

FOR SALE
OVERSTOCK OF MOTOR GENERATOR SETS
The following equipment has not been used and is available for sale only because it does not suit our machines as now being built:
1 MG SET, 90 horse power, 440 volts.
3 MG SET, 75 horse power, 440 volts.
2 MG SET, 75 horse power, 2200 volts.
1 MOTOR, 90 horse power, 500 volts.
Complete description on request.
BUCYRUS-ERIE COMPANY
Sales Department
South Milwaukee, Wis.